

**FINDING OF NO SIGNIFICANT IMPACT
CONSTRUCTION OF STORM WATER DETENTION SYSTEM
AT STORM WATER OUTFALL #3
MALMSTROM AIR FORCE BASE, MONTANA**

AGENCY: United States Air Force, 341st Space Wing

BACKGROUND

The United States Air Force (USAF) conducted an Environmental Assessment (EA) of the potential environmental and social consequences of constructing and operating a storm water detention pond at storm water Outfall #3 at Malmstrom Air Force Base (AFB), pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §4321 to §4370d), Council on Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Part 1500-1508), and the USAF Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001). The EA is incorporated by reference herein.

PROPOSED ACTION

This project proposes to construct a storm water detention pond at Malmstrom AFB storm water Outfall #3 to address flooding and erosion issues historically experienced at that outfall; improve water quality at the discharge boundary of Malmstrom AFB; and control peak flow discharge rates. Outfall #3 is one of 9 outfalls discharging storm water runoff from Malmstrom AFB. It is located on the north boundary of the base discharging water into the Middle Fork of Whitmore Ravine. The detention pond will detain water from the 10-year 24-hour storm to prevent erosion, provide settling of sediments before discharge, and control the 10-year 24-hour storm event peak flow at the proposed site.

Additional design parameters used in the design of the proposed pond include the *City of Great Falls Storm Drain Design Manual* definition of the hourly precipitation distribution for a 10-year 24-hour storm; a maximum discharge rate from the detention pond of 12.9 cubic feet per second (cfs) in order to maintain predevelopment peak flow rates from the 100-year 2-hour storm; and a maximum slope of 3:1 for the old Milwaukee Railroad fill. The proposed pond will store approximately 494,700 cubic feet of water and reduce outflow to the Middle fork of Whitmore Ravine to 12.9 cfs. Construction of the pond will require approximately 10,400 cubic yards of material to be excavated. The 341st Civil Engineer Squadron (341 CES/CEV) will determine the location of the storage site for excavated clean fill material prior to construction.

The Proposed Action will also require modifying Outfall #3 with an orifice plate to regulate the outlet flow rate into Whitmore Ravine. The outlet structure would be modified as needed to provide for the proper retention pond water depth. The outlet gate will be moved upstream of the orifice plate to allow for closure of the outfall in the event of a contaminant release. The existing structure would be modified to include 4.75 feet of 3-foot diameter corrugated metal pipe (CMP) to the inner CMP overflow pipe and an orifice plate with a 0.96-inch diameter orifice to the 3-foot diameter CMP outflow pipe.

ALTERNATIVES CONSIDERED

In addition to the Proposed Action, a No-Action Alternative (as prescribed by CEQ regulations) was considered and evaluated in the EA. Under the No Action Alternative, the storm water detention pond would not be built and there would be no assurances of proper drainage and reduced flow rates of storm water off base. Erosion issues would remain an issue for the installation.

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13. SUPPLEMENTARY NOTES					
14. ABSTRACT The United States Air Force (USAF) has prepared this EA to assess the environmental and social impacts resulting from the proposed action to construct a storm water detention pond at storm water Outfall #3 planned for late Fiscal Year (FY) 2007 at Malmstrom AFB.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 88	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS

Consideration of effects described in the EA and a finding that they are not significant is a necessary and critical part of this Finding of No Significant Impact (FONSI) as required by 40 CFR 1508.13. Significance criteria are defined in 40 CFR 1508.27 to consider direct, indirect, and cumulative impacts and the context and intensity of impacts. The potential impacts of constructing and operating the detention system are analyzed in detail in the Affected Environment and Environmental Consequences section of the EA for the following resource areas and conditions: air quality, noise, soils, water resources, hazardous materials and waste, and solid waste and pollution prevention. The analyses indicated that implementing the Proposed Action would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Best management practices described in the EA and incorporated into the Proposed Action, including post-construction monitoring and documentation, are generally required of the proponent by laws, regulations, or USAF policies and are adopted by this decision.

PUBLIC INVOLVEMENT

NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989 require public review of the EA before approval of the FONSI and implementation of any Proposed Action. The Draft EA and Draft FONSI was made available for a 30-day federal, state, and local agency and public review and comment period through publication of a notice of availability in the Thursday, June 14, 2007 edition of the Great Falls Tribune. Copies of the Draft EA and Draft FONSI were distributed to individuals on the project mailing list and to various federal, state, and local agencies. A hard copy of the Draft EA and Draft FONSI was made available for public review in the Arden G. Hill Memorial Library at Malmstrom AFB and the Great Falls Public Library in Great Falls, Montana. The public comment period on the EA began on June 14, 2007 and closed on July 16, 2007. The USAF received comments on the project from two agencies: Montana Fish, Wildlife & Parks, and the Cascade County Conservation District.

FINDING OF NO SIGNIFICANT IMPACT

Based on the requirements of NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989, I conclude the environmental effects of the Proposed Action are not significant and therefore, an environmental impact statement is not required for this projects and thus will not be prepared. The signing of this FONSI completes the USAF EIAP.

Approved:



SANDRA E. FINAN, Colonel, USAF
Commander, 341st Space Wing

28 Aug 07
Date

ENVIRONMENTAL ASSESSMENT
FOR CONSTRUCTION OF STORM WATER
DETENTION SYSTEM
AT STORM WATER OUTFALL #3

Malmstrom Air Force Base, Montana



Prepared by

Headquarters Air Force Center for Environmental Excellence
Project Execution Division

August 2007

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2
3 **COVER SHEET**
4 **ENVIRONMENTAL ASSESSMENT**
5 **FOR CONSTRUCTION OF STORM WATER DETENTION SYSTEM AT STORM WATER OUTFALL #3**
6 **AT MALMSTROM AIR FORCE BASE, MONTANA**

7 **Prepared by**
8 **Headquarters Air Force Center for Environmental Excellence**
9 **Project Execution Division**
10 **Brooks Air Force Base, Texas 78235-5122**

11 a. **Responsible Agency:** U.S. Air Force, 341 Space Wing

12 b. **Proposed Action:** The proposed action analyzed in the Environmental Assessment (EA) is to construct and
13 operate a storm water detention pond at storm water Outfall #3 at Malmstrom Air Force Base (AFB) planned for late
14 Fiscal Year 2007.

15 c. **Written comments and inquiries regarding this document should be directed to:** Ms. Karen J. Clavin, 341
16 CES/CEV, 39 78th Street North, Malmstrom AFB, Montana 59402-7536; telephone (406) 731-6369; e-mail
17 karen.clavin@malmstrom.af.mil.

18 d. **Privacy Advisory:** Your comments on this EA are requested. Letters or other written or oral comments provided
19 may be published in the Final EA and made available to the public. Any personal information provided will be used
20 only to identify your desire to make a statement during the public comment portion of any public meeting or
21 hearings or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be
22 compiled to develop a mailing list for those requesting copies of the Final EA. However, only the name of
23 individuals making comments and specific comments will be disclosed. Personal home addresses and phone
24 numbers will not be published in the Final EA.

25 e. **Designation:** EA

26 f. **Abstract:** The United States Air Force (USAF) has prepared this EA in accordance with the National
27 Environmental Policy Act to evaluate the potential environmental and social impacts from the construction and
28 operation of the proposed storm water detention pond at storm water Outfall #3. The EA considers the No Action
29 Alternative and the Proposed Action, for the proposed action. The proposed pond is required to ensure proper
30 drainage of storm water off of Malmstrom AFB; and minimize momentum-induced erosion issues on the base.

31 The environmental resources potentially affected by the proposed action include: air quality; noise; soils; water
32 resources; hazardous materials and waste; and solid waste and pollution prevention. Based on the nature of the
33 activities that would occur during the construction and operation of the storm water detention pond at storm water
34 Outfall #3, the USAF has determined that minimal or no adverse impacts to the above resources are anticipated.

35 g. **Comments must be received by:** July 16, 2007

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29		#3	

Acronyms

1	341 CES/CEV	341 Civil Engineering Squadron
2	AAM	annual arithmetic mean
3	AAQS	Ambient Air Quality Standards
4	ACC	Air Combat Command
5	ACHP	Advisory Council on Historic Preservation
6	AFB	Air Force Base
7	AFI	Air Force Instruction
8	AFSPC	Air Force Space Command
9	AGM	annual geometric mean
10	AICUZ	Air Installation Compatible Use Zone
11	AQCR	Air Quality Control Region
12	ARM	Administrative Rule of Montana
13	As	arsenic
14	bgs	below ground surface
15	BMPs	best management practices
16	°C	degrees Celsius
17	CAA	Clean Air Act
18	CAAA	Clean Air Act Amendment
19	CEQ	Council on Environmental Quality
20	CERCLA	Comprehensive Environmental, Response, Compensation, and Liability Act
21	CFR	Code of Federal Regulations
22	cfs	cubic feet per second
23	CIP	Capital Improvements Program
24	cm	centimeter
25	CMP	corrugated metal pipe
26	CO	carbon monoxide
27	Cu	copper
28	cu ft	cubic feet
29	cu yd	cubic yard
30	CWA	Clean Water Act
31	dB	decibel
32	DNRC	Montana Department of Natural Resources and Conservation
33	DoD	Department of Defense

Acronyms

1	EA	Environmental Assessment
2	EIAP	Environmental Impact Analysis Process
3	EIS	Environmental Impact Statement
4	EO	Executive Order
5	ERP	Environmental Restoration Program
6	°F	degrees Fahrenheit
7	FEMA	Federal Emergency Management Agency
8	FONSI	Finding of No Significant Impact
9	ft	foot or feet
10	FY	Fiscal Year
11	g/m ²	grams per square meter
12	HQ	Headquarters
13	H ₂ S	hydrogen sulfide
14	ICBM	Intercontinental Ballistic Missile
15	in	inch(es)
16	IRP	Installation Restoration Program
17	Leq	energy equivalent sound level
18	LF	Launch Facility
19	MAF	Missile Alert Facility
20	MCA	Montana Code Annotated
21	MDEQ	Montana Department of Environmental Quality
22	mi	miles
23	MPDES	Montana Pollutant Discharge Elimination System
24	mph	miles per hour
25	m/s	mean speed
26	NAAQS	National Ambient Air Quality Standards
27	NEPA	National Environmental Policy Act
28	NHPA	National Historic Preservation Act
29	NO ₂	nitrogen dioxide
30	NO _x	nitrogen oxides
31	NPDES	National Pollutant Discharge Elimination System
32	NRHP	National Register of Historic Places
33	NRCS	Natural Resource Conservation Service

Acronyms

1	O ₃	ozone
2	ODS	ozone depleting substances
3	OSHA	Occupational Safety and Health Administration
4	P2	Pollution Prevention
5	Pb	lead
6	PCB	polychlorinated biphenyl
7	pCi/L	picocuries per liter
8	PM _{10/2.5}	particulate matter particles equal to or less than 10/2.5 microns
9	POL	petroleum, oils, and lubricants
10	ppm	parts per million
11	PSD	Prevention of Significant Deterioration
12	QRP	Qualified Recycling Program
13	RCRA	Resource Conservation and Recovery Act
14	RV	recreational vehicle
15	SHPO	State Historic Preservation Officer
16	SIP	State Implementation Plan
17	SO ₂	Sulfur dioxide
18	SO _x	Sulfur oxides
19	SPCC	Spill Prevention Control and Countermeasures
20	sq ft	square foot/feet
21	sq mi	square mile
22	SW	Space Wing
23	SWMM	Storm Water Management Model
24	SWMP	Stormwater Management Program
25	SWMU	Storm Water Management Unit
26	SWPPP	Storm Water Pollution Prevention Plan
27	TMDL	Total Maximum Daily Loads
28	TPH	Total Petroleum Hydrocarbons
29	TSP	total settleable particulates
30	µg/g	micrograms per gram
31	µg/m ³	micrograms per cubic meter
32	U.S.	United States
33	USACE	U.S. Army Corps of Engineers

Acronyms

1	USAF	U.S. Air Force
2	USC	U.S. Code
3	USEPA	U.S. Environmental Protection Agency
4	VOC	volatile organic compound
5		
6		

This chapter describes the purpose of and need for the proposed action at Malmstrom Air Force Base (AFB), provides summaries of the scope of the environmental review and the applicable regulatory requirements, and presents an overview of the organization of the document.

Federal agencies are required to consider the environmental consequences of proposed actions in the decision-making process under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §4321 to §4370d) and the Council on Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Part 1500-1508). This Environmental Assessment (EA) for the proposed construction of a storm water detention system at Malmstrom AFB was prepared in accordance with NEPA and CEQ regulations. Additionally, this EA complies with the Air Force Environmental Impact Analysis Process (EIAP) for the proposed action as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001), which implements NEPA, CEQ regulations, and Department of Defense (DoD) Instruction 4715.9 (Environmental Planning and Analysis).

1.1 BACKGROUND

Malmstrom AFB is situated in a section of rolling plains, occupying approximately 3,600 acres in Cascade County in west central Montana (Figure 1). Its elevation is at 3,525 feet (ft) above sea level on a plateau that slopes away from the Little Belt Mountains, north towards the Missouri River. The Missouri River flows north and northeast of the Base. Stream valleys are interspersed throughout the area, but most of the year these valleys are dry. The base lies approximately 0.3 miles (mi) east of the City of Great Falls city limit at its closest point, and is 5 mi from the central business district of the city. The city has a population of approximately 56,700 people. Interstate Highway 15 passes along the western boundary of Great Falls. Access to the base main gate is off U.S. Highway 87/89, east of Interstate Highway 15, via 2nd Avenue North. Land to the south, east and north is used for production of small grain cereals, livestock grazing, and similar agricultural uses.

The 341 Space Wing (SW) is the current host of the installation and their mission is to keep America free and strong by providing combat-ready people and aerospace forces. Since 1961, the 341 SW has provided the nation's strategic deterrent intercontinental ballistic missile capability. Malmstrom is one of three U.S. Air Force Bases that maintains and operates the Minuteman III intercontinental ballistic missile (ICBM). The 341 SW operates 200 Launch Facilities (LF) and 20 Missile Alert Facilities (MAF), which provide the critical component of America's on-alert strategic forces. The SW also operates 7 UH-1N "Huey" helicopters throughout a 23,500-square mile (sq mi) missile complex in north central Montana. The helicopters are used as a force-multiplier in day-to-day security of the missile complex. The 341 SW reports directly to 20th Air Force, F.E. Warren AFB, Wyoming, and is part of Air Force Space Command (AFSPC), headquartered at Peterson AFB, Colorado.

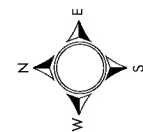
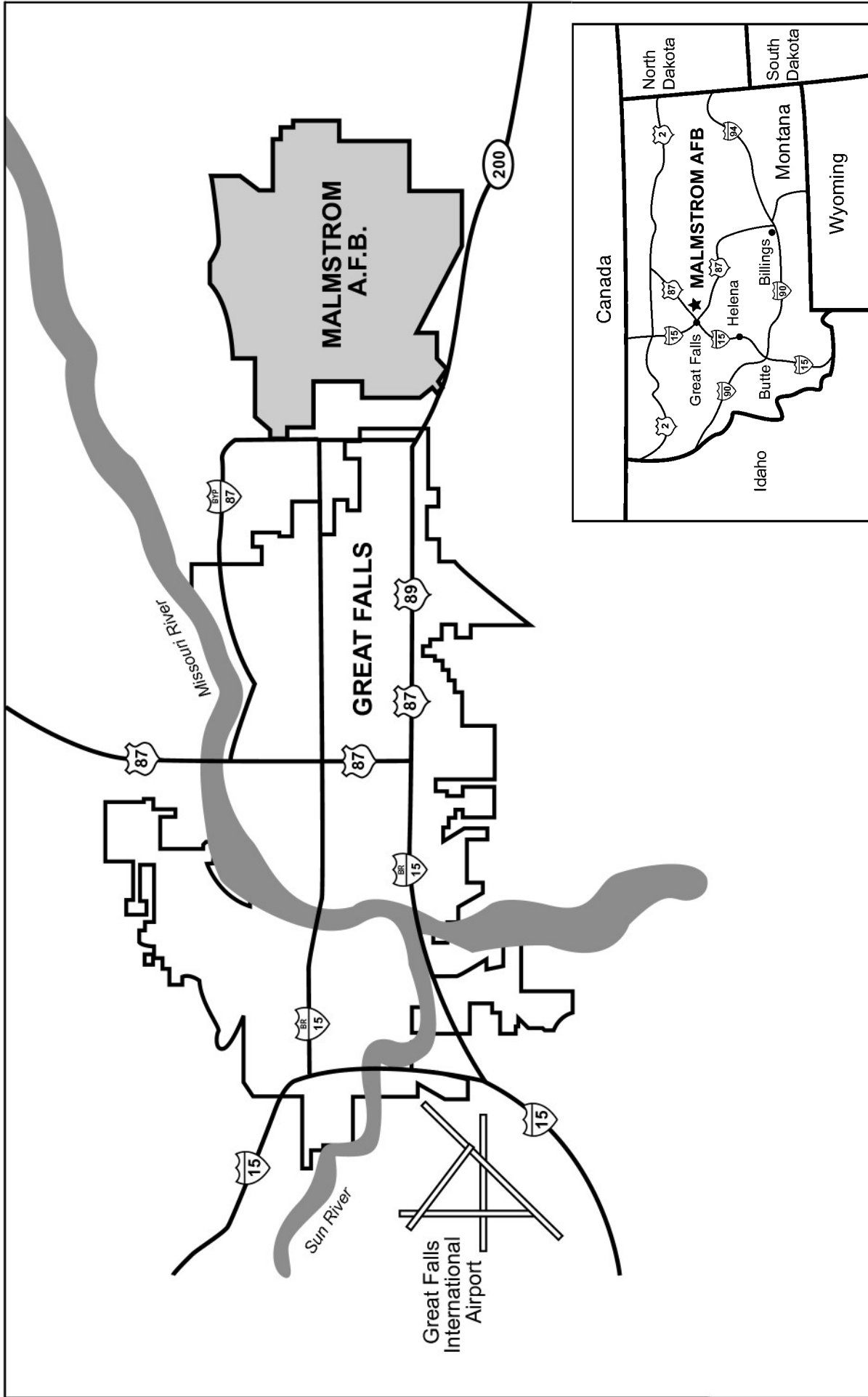
Approximately 4,100 people, including more than 3,640 active-duty and more than 430 civilians, comprise the 341 SW. Malmstrom AFB is also host to several tenant units, including the 819 RED HORSE Squadron, which accounts for another 404 personnel. The 819 RED HORSE is a rapidly deployable Air Combat Command (ACC) engineering and construction unit that trains at Malmstrom for deployment around the globe.

SECTION ONE

Purpose and Need for the Proposed ActionT

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Figure 1

Regional Context Map for Malmstrom Air Force Base
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The United States Air Force (USAF) has prepared this EA to assess the environmental and social impacts resulting from the proposed action to construct a storm water detention pond at storm water Outfall #3 planned for late Fiscal Year (FY) 2007 at Malmstrom AFB (Figure 2).

This project proposes to construct a storm water detention pond at Malmstrom AFB storm water Outfall #3 to address flooding and erosion issues historically experienced at that outfall; improve water quality at the discharge boundary of Malmstrom AFB; and control peak flow discharge rates. The detention pond would retain water from the 10-year 24-hour storm to control and minimize erosion, provide settling of sediments before discharge, and control the 10-year 24-hour storm event peak flow at the proposed site.

Drainage Area 3

Outfall #3 is one of 9 outfalls discharging storm water runoff from Malmstrom AFB. It is located on the north boundary of the base discharging water into the Middle Fork of Whitmore Ravine. The area draining to Outfall #3 is considered Drainage Area 3 (341 CES/CEVC 2006a) (Figure 3).

Drainage Area 3 is bounded on the east by the east edge of the runway; on the north by the base boundary extending from the former pole yard storage area to the coal-fired heating plant; on the west by Drainage Areas 1 and 2 (Goddard Drive from 80th Street North to 72nd Street North; and on the south by Drainage Area 1 (72nd Street North from Goddard to the old aircraft operations apron to Taxiway R) (Figure 3). Drainage Area 3 collects and discharges storm water from the majority of the old aircraft operations pavements, the primary petroleum operations, storage and supply systems, several industrial facilities, and light commercial and residential (dormitory) areas. Two sub-drains are included in this drainage. These sub-drains collect and discharge shallow groundwater in the area. The easternmost sub-drain collects groundwater from beneath the runway, taxiways, and aircraft parking ramps.

Existing Storm Drain

Storm water runoff for Drainage Area 3 is collected by four storm drain mains. These mains, shown in Figure 4, converge at 80th Street North, north of Building 1708, and are conveyed through a series of concrete channels and culverts past an abandoned oil/water separator by the intersection of Perimeter and Rescue Roads to a 40-inch (in) reinforced concrete culvert under Pole Yard Road. Storm water then flows by natural channel to Outfall #3, under the old Chicago, Milwaukee, St. Paul, and Pacific (referred heretofore as the old Milwaukee Railroad) right-of-way fill, and into the Middle Fork of Whitmore Ravine.

Existing Outfall #3 Outlet Structure

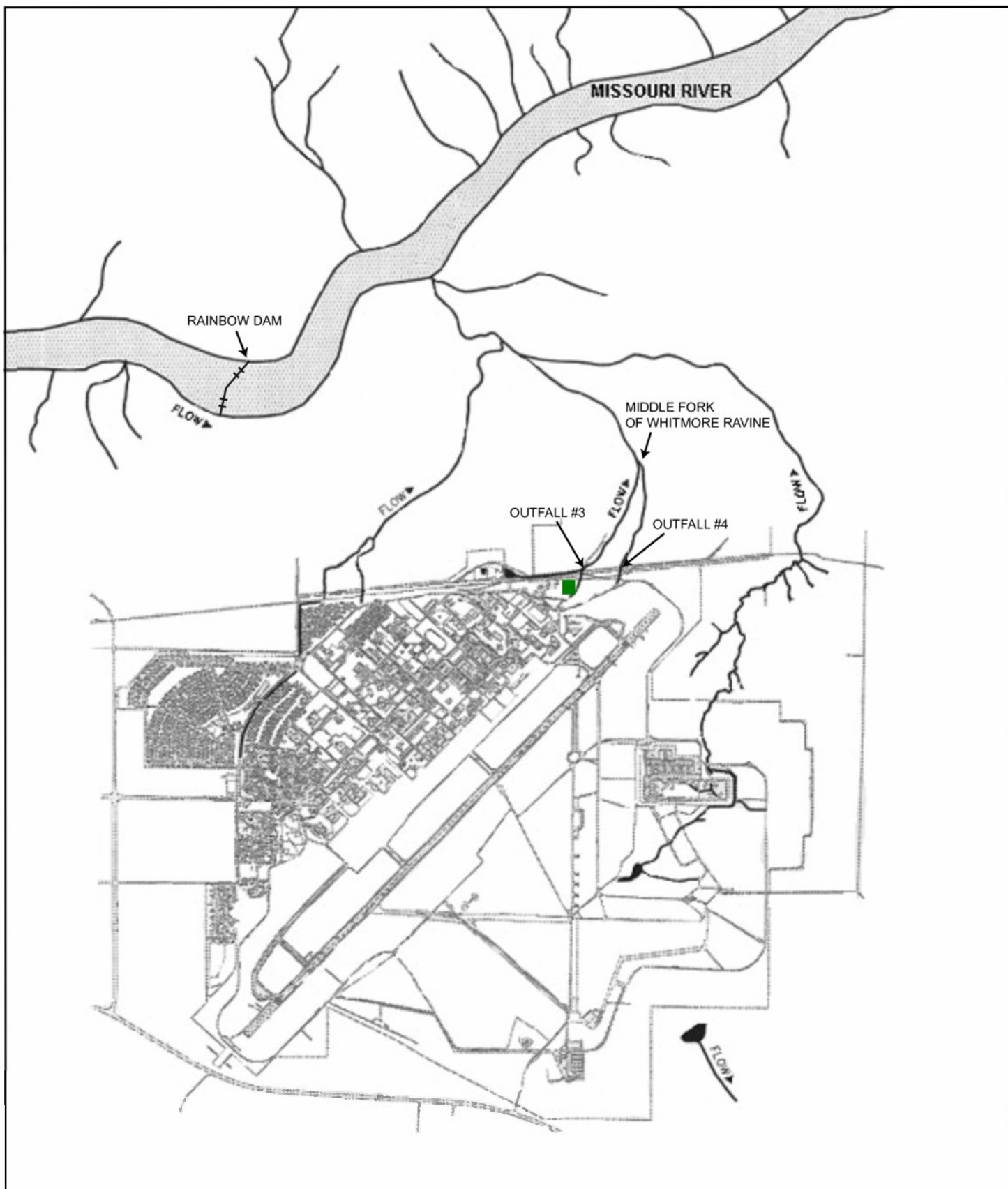
Figure 5 shows the existing Outfall #3 outlet structure. The structure was constructed so that in the event of a contaminant spill within Drainage Area 3, a gate could be closed to prevent the contaminant from moving off the base property. The outflow structure has two vertical steel culverts, one inside the other. The outer culvert is placed around the inner culvert with the top of the culvert higher than the inner culvert. This allows water discharged over the top of the inner culvert to come from beneath the water surface, preventing any floating contaminants from being discharged into Whitmore Ravine.

SECTION ONE

Purpose and Need for the Proposed ActionT

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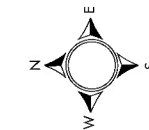
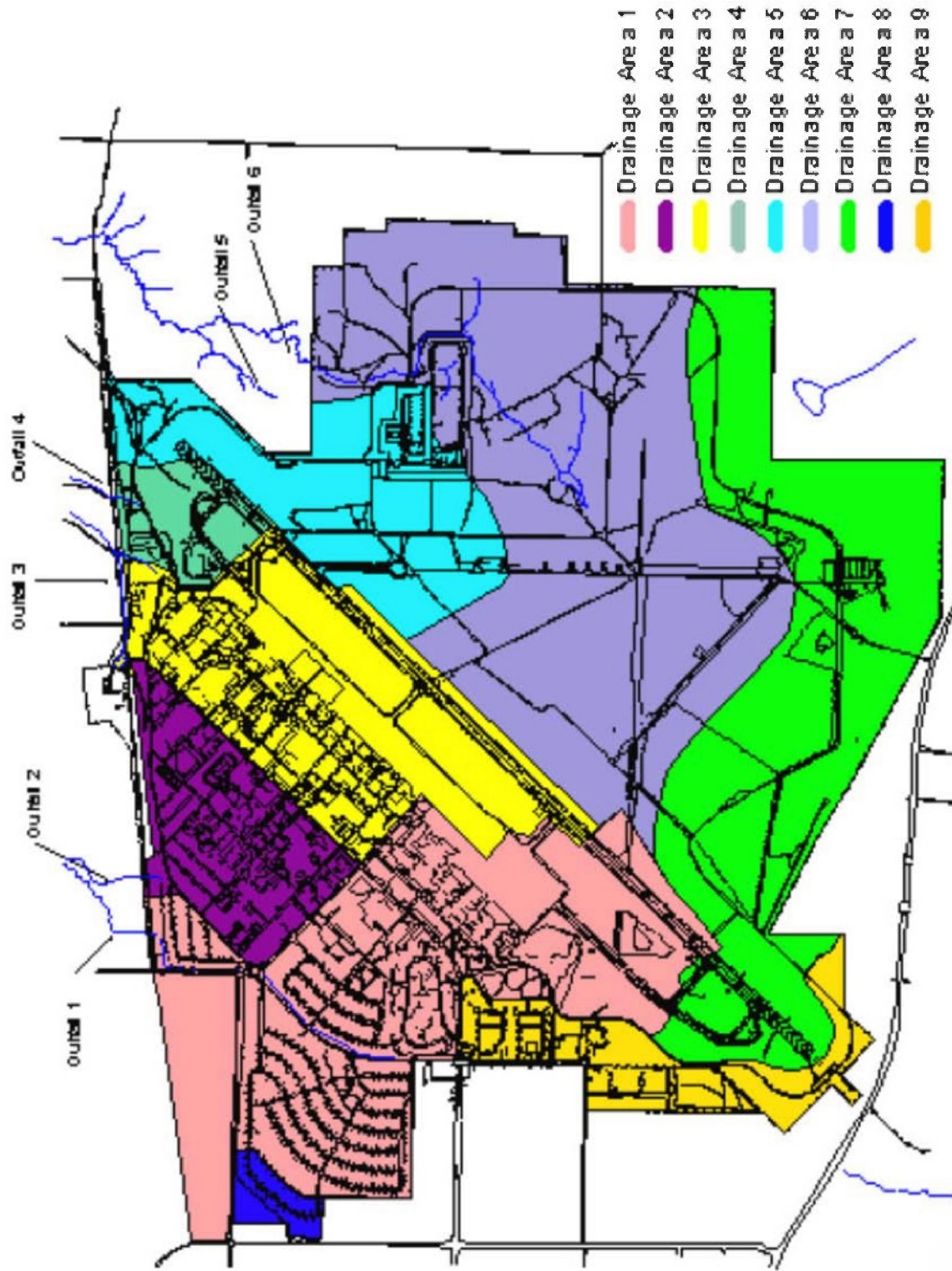
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■ Proposed Project Area

Figure 2

Surface Water Drainage Patterns at Malmstrom Air Force Base
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT



Source: Final Integrated Natural Resources Management Plan for Malmstrom Air Force Base. 341 CES/CEVC. December 2001.

Figure 3

Drainage Area and Outfall Locations at Malmstrom Air Force Base
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

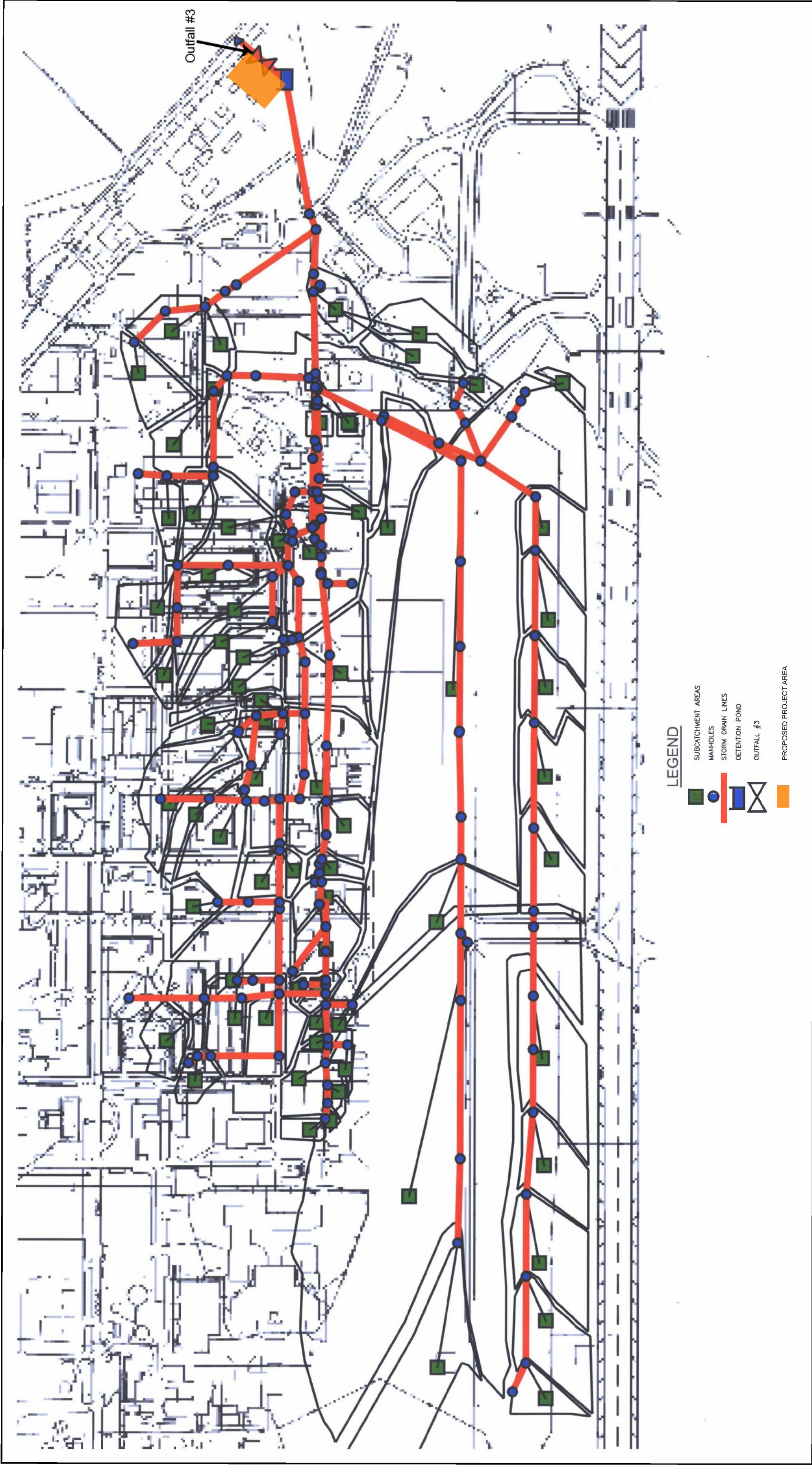


Figure 4
Drainage Area 3 with Subcatchment Areas, Storm Drain Lines, and Manhole Locations
EA for Construction of Storm Water Detention System at Storm Water Outfall #3
at Malmstrom AFB, MT

Source: Type A Submittal Final for Retention Area, Outfall #3, October 2006.



Figure 5
Existing Outlet Structure at Outfall #3
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

1.3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

1.3.1 Resources to be Analyzed in this EA

This EA addresses the potential impacts of the proposed action to air quality; noise; soils; water resources, including surface water and groundwater; hazardous materials and wastes; and solid waste and pollution prevention.

The draft EA was made available for public and agency review and comment during a 30-day review period commencing on June 14, 2007 and ending on July 16, 2007 (See newspaper advertisement in Appendix B). The USAF received comments on the project from two agencies: Montana Fish, Wildlife & Parks, and the Cascade County Conservation District. These comments and USAF responses to these comments are contained in Appendix C. After reviewing the analysis in this EA, a decision by the USAF will be made as to whether to issue a finding of no significant impact (FONSI) or to proceed with the development of an environmental impact statement (EIS) to further analyze the potentially significant impacts resulting from implementation of the proposed action or alternatives.

1.3.2 Resources Eliminated from Detailed Analysis

The following environmental issues were initially considered, but were determined to not be relevant to the proposed action being considered. By utilizing standard measures such as avoidance and best management practices (BMPs), the resources listed below would not be impacted by the proposed action. Consequently, these resources have been eliminated from detailed analysis.

Floodplains: Executive Order (EO) 11988, "Floodplain Management," requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The proposed project area is located outside of the 100-year floodplain. Therefore, floodplain management was dismissed as an environmental issue.

Wetlands: EO 11990, "Protection of Wetlands," requires federal agencies to take action to avoid, to the extent practicable, the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. The intent of EO 11990 is to avoid direct or indirect construction in wetlands if a feasible alternative is available. All federal and federally supported activities and projects must comply with EO 11990.

In addition, activities occurring in jurisdictional wetlands and other Waters of the U.S. require compliance with Section 404 of the Clean Water Act (CWA) administered by the U.S. Army Corps of Engineers (USACE) and Section 401 of the CWA administered by the U.S. Environmental Protection Agency (USEPA) for on-base lands and the Montana Department of Environmental Quality for off-base lands. Proposed actions that have the potential to adversely impact wetlands must be addressed in a statement of findings. No jurisdictional wetlands currently exist on the base, nor are there any wetlands regulated by EO 11990 in the immediate project area. The 2006 Malmstrom Air Force Base Draft Wetland Delineation Report (Ecosystem Research Group 2006a) identifies two sites, NWI-5.1 and NWI-5.3, as inventoried during the 2006 wetlands inventory conducted during preparation of this report. Neither is

afforded federal protection under EO 11990. Therefore, wetlands were dismissed as an environmental issue.

Biological Resources: Native and non-native wildlife, wetlands, and vegetation, as well as threatened, endangered, and other sensitive species known or likely to occur at Malmstrom AFB are documented in the *Final Integrated Natural Resources Management Plan for Malmstrom Air Force Base*, December 2001.

The Endangered Species Act (§16 USC 1531-1543) requires federal agencies that authorize, fund, or carry out actions to avoid jeopardizing the continued existence of endangered or threatened species or destroying or adversely modifying their critical habitat. Federal agencies must evaluate the effects of their actions on endangered or threatened species of fish, wildlife, and plants and their critical habitats and take steps to conserve and protect these species. This Act requires the avoidance or mitigation of all potentially adverse impacts to endangered and threatened species. No federally-listed threatened or endangered species, or potential habitat for these species have been identified on the base. In addition, little native vegetation exists on the proposed project area and the project area generally does not support wildlife. Therefore, biological resources were dismissed as an environmental issue.

Geology: Because there are no active faults near the project area or Malmstrom AFB, the occurrence of geologic hazards and seismic activity in the study area is low. Bedrock is not encountered within 11 to 12 feet of the surface, therefore geologic resources are not anticipated to be impacted by the pond, which is estimated to be at a maximum depth of 11.4 feet. The proposed project area would have little to no effect on the geology of the area. Therefore, geology was dismissed as an environmental issue.

Cultural, Paleontological, and Archaeological Resources: The National Historic Preservation Act (NHPA), as amended (16 USC 470 *et seq.*) and NEPA require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places (NRHP). No NRHP-listed resources are located on Malmstrom AFB. A segment of the Chicago, Milwaukee, St. Paul, and Pacific Railroad (now Burlington Northern Santa Fe) lies offsite and traverses the northern border of the base, adjacent and to the north of the proposed project area (*Cultural Resources Management Plan for Malmstrom Air Force Base, Montana*, July 2005). This railroad segment (Site 24CA264) was determined to be potentially eligible for listing on the NRHP based on its role in the Euro-American settlement of the region. The USAF does not anticipate that this railroad segment nor any other historic structures or buildings, or archaeological sites would be impacted by the proposed project. There are no known historical and or archaeological resources on the proposed site; therefore, impacts to cultural resources are not expected.

Previous contacts with the Montana State Historic Preservation Officer (SHPO) confirmed the presence of one of many known potentially eligible cultural resource (historic railroad tract segment) adjacent to, but not within the proposed project area (USACE 2005).

Should any cultural or archaeological resources be uncovered during construction of the storm water detention system, work would stop and the site would be evaluated prior to the continuation of the project. Therefore, historic structures and buildings, and archaeological resources were dismissed as an environmental issue.

Visual Resources: The Malmstrom AFB Master Plan describes lands on the base as industrial. Because the proposed project takes place within the industrial confines of the base, there would be no new impacts to visual or scenic resources. In addition, the proposed project does not intrude on the vertical visual landscape and would not further degrade visual resources. Minor, adverse, and short-term impacts could result from construction activities. Therefore, visual resources were dismissed as an environmental issue.

Air Space: Because the proposed project would not involve any flying and/or flying missions, there would be no new impacts to airspace. Therefore, air space was dismissed as an environmental issue.

Land Use: The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel of land. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention of uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels”, and definitions vary among jurisdictions. Present land use in the proposed project area, as outlined in the *Integrated Natural Resources Management Plan at Malmstrom Air Force Base*, December 2001, is industrial. Because the proposed project takes place within this industrial area, there would be no impacts on existing land use patterns. Therefore, land use was dismissed as an environmental issue.

Socioeconomics: Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. The proposed action would not alter the number of personnel assigned to Malmstrom, or change local population densities or distribution, or result in any increased development. Therefore, there would be no changes in area population or associated demands for housing and support services.

Also included with socioeconomics are concerns pursuant to EO 13045, “Protection of Children from Environmental Health Risks and Safety Risks.” This EO directs federal agencies to identify and assess environmental health and safety risks that might disproportionately affect children. The proposed action would not pose any adverse or disproportionate environmental health and safety risks to children living on or in the vicinity of Malmstrom AFB. The proposed project area would be fenced (TD&H Engineering Consultants. 2006), and the likelihood of the presence of children at the site of the proposed action is considered minimal, which further limits the potential for any effects. Therefore, socioeconomics was dismissed as an environmental issue.

Environmental Justice: Executive Order 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires that all federal agencies address the effects of policies on minorities and low-income populations and communities. There are no environmental justice populations identified that would be impacted by the proposed action. Therefore, there would be no disproportionately high and adverse human health or environmental effects to minority or low-income populations or communities in the area. Therefore, environmental justice was dismissed as an environmental issue.

Transportation: The proposed project does not include any changes to the transportation network at Malmstrom AFB. In addition, increases in traffic volumes associated with construction activity would be temporary. Upon completion of construction, no long-term impacts to on-base transportation systems would result. Therefore, transportation was dismissed as an environmental issue.

Utilities: Issues and concerns regarding infrastructure are related to creating stress on infrastructure systems, such that the existing infrastructure must be updated or changed. Assessing impacts to infrastructure entails a determination of infrastructure that would be used as a result of the Proposed Action. There is an existing transformer on the proposed project area (Building 1537), however it does not contain polychlorinated biphenyls (341 CES/CEVC 2006). No upgrades are expected to be needed for potable water, electric, natural gas, and sanitary networks. The proposed project would not place a demand for public utility services and would not be a major impact to regional or local energy supplies. Therefore, utilities was dismissed as an environmental issue.

1.4 APPLICABLE REGULATORY REQUIREMENTS

This EA is documentation of the EIAP, and complies with NEPA, CEQ regulations, and DoD Instruction 4715.9. The EA addresses all applicable federal, state, and local laws and regulations, including but not limited to the Clean Air Act (CAA); Endangered Species Act; Air Force Instruction (AFI) 32-7040, Air Quality Compliance; AFI 32-7088, Pollution Prevention Program; AFI 32-7042, Solid and Hazardous Waste Compliance; Resource Conservation and Recovery Act (RCRA); and Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA). Each environmental resource is regulated and/or protected by federal and State of Montana regulations. In establishing the background conditions and assessing the potential environmental consequences of the proposed action, the following regulations were also considered.

1.4.1 Air Quality

The Montana Clean Air Act (Montana Code Annotated [MCA], Title 75, Chapter 2) implements the federal CAA. The Montana Clean Air Act, implemented by the Air Quality Procedural Regulations, the Air Quality Regulations, and the National Ambient Air Quality Standards (NAAQS), establishes ambient air quality standards and permitting and monitoring procedures.

The Clean Air Act Amendment (CAAA) of 1990 established new federal non-attainment classifications, new emission control requirements, and new compliance dates for non-attainment areas. The requirements and compliance dates are based on the severity of non-attainment classification.

1.4.2 Water Quality

The Water Pollution Control Law (MCA 75.05) sets forth water conservation, water quality protection, and pollution prevention and abatement measures. Implementing regulations include the Water Pollution Control Regulations (Administrative Rule of Montana [ARM], Title 17, Chapter 30, Subchapter 7).

The Montana Pollutant Discharge Elimination System (MPDES) Rules (ARM 17.30.12-13) establish effluent limitations, treatment standards, and other requirements for point source discharge of waste into State waters, including storm water runoff.

The Groundwater Pollution Control Regulations (ARM 17.30.10) establish groundwater classification, and set forth protection and permitting requirements, while the Surface Water

Quality Standards (ARM 17.30.06) establish surface water quality criteria to ensure public health and safety and provide for water conservation.

1.4.3 Public Health and Safety/Hazardous Waste

The Solid Waste and Litter Control Act (MCA 75.10) provides for coordinated state solid waste management and a resource recovery plan. The Integrated Waste Management Act (MCA 75.10) provides for waste reduction and recycling programs.

The Hazardous Waste Act (MCA 75.10) and the Hazardous Waste Management Regulations (ARM 16.44) control the generation, storage, transportation, treatment, and disposal of hazardous wastes; this Act also authorizes the state to implement a program pursuant to RCRA.

The Refuse Disposal Regulations (ARM 16.14.05) implement the Hazardous Waste Act and regulations. These regulations provide uniform standards for the storage, treatment, recycling, recovery, and disposal of solid waste, including hazardous waste, and the transportation of hazardous waste.

1.5 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT

Pursuant to 32 CFR Part 989 implementing the CEQ regulations (40 CFR 1502), this document consists of the following sections:

Acronyms and Abbreviations: provides a list of acronyms and abbreviations used throughout the document.

Section 1 – Purpose and Need for the Proposed Action: provides background information about the installation; the purpose and need for the proposed action; the scope of the environmental review; applicable regulatory requirements; and a brief description of how the document is organized.

Section 2 – Description of the Proposed Action and Alternatives: provides the selection criteria; a detailed description of the proposed action and the No Action Alternative; other alternatives that were considered but not carried forward in the evaluation process; and an alternatives comparison table.

Section 3 – Affected Environment and Environmental Consequences: provides a description of the existing conditions of the areas potentially affected by the alternatives identified to implement the proposed action; standards of significance for comparison of impacts against existing conditions; and an analysis of the direct and indirect impacts to resources from the alternatives.

Section 4 – Cumulative Impacts: provides an analysis of present and reasonably foreseeable projects, and the potential incremental impacts of the proposed action when considered along with these other planned or reasonably foreseeable projects.

Section 5 – List of Preparers: provides a list of the document preparers and contributors.

Section 6 – Distribution List and Agencies and Individuals Contacted: provides lists of agencies/individuals to whom the EA will be distributed.

Section 7 – References: provides a listing of the references used in preparing this EA.

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This section provides a detailed description of the Proposed Action and the No Action Alternative for construction of the storm water detention system at storm water Outfall #3. Alternatives that were considered but dismissed are also discussed. In addition, a summary of impacts for each alternative is provided at the end of this chapter.

2.1 DESCRIPTION OF THE PROPOSED ACTION

The USAF proposes to construct a new storm water detention pond at storm water Outfall #3 in Drainage Area 3. The following design parameters were used in the design of the proposed pond (TD&H Engineering Consultants. 2006):

- The design storm for sizing the pond is to be the 10-year 24-hour storm;
- The hourly precipitation distribution for the 10-year 24-hour storm will be defined by the *City of Great Falls Storm Drain Design Manual*, June 1990;
- A maximum discharge rate from the detention pond is to be 12.9 cubic feet per second (cfs) in order to maintain predevelopment peak flow rates from the 100-year 2-hour storm; and
- Maximum slope of the old Milwaukee Railroad fill will be 3:1.

Information from Malmstrom AFB's block plans and storm water drain as-built drawings were used to develop a model of the current storm drainage conveyance system for Drainage Area 3. This USEPA *Stormwater Management Model* (SWMM) was used to route the design storm through the storm drain system, proposed retention pond, and outlet structure to estimate runoff rates conveyed to the Middle Fork of Whitmore Ravine. The detention pond and outlet structure were sized to reduce outflow from the pond to below the 12.9 cfs maximum detention pond discharge rate. Figure 4 shows the storm drain lines and areas draining to inlets that were input into the SWMM model.

Outfall Modifications

Outfall #3 would be modified as shown in Figure 6 with an orifice plate to regulate the outlet flow rate into Whitmore Ravine. The outlet structure would be modified as needed to provide for the proper detention pond water depth. The outlet gate would be moved upstream of the orifice plate to allow for closure of the outfall in the event of a contaminant release. The existing structure would be modified to include 4.75 ft of 3 ft diameter corrugated metal pipe (CMP) to the inner CMP overflow pipe and an orifice plate with a 0.96 in diameter orifice to the 3 ft diameter CMP outflow pipe.

During a storm runoff event, storm water would be released continuously from the detention pond at a reduced rate through the orifice plate with additional flows stored in the pond. After the storm had passed, water would continue to flow through the orifice plate until the pond is empty. For storms larger than the design storm, water would fill the detention pond, flow over the inner culvert, and be discharged directly to Whitmore Ravine. The outfall discharge flows in this case would be greater than the 12.9 cfs design discharge rate. However, there is a 1 percent chance of having a 100 year storm event.

For extremely large storms, after reaching the discharge capacity of the outlet structure, detention pond water would flow overland into Outfall #4. Again, for storms with larger runoff than the design storm, total storm water release rates would be greater than the 12.9 cfs design discharge rate.

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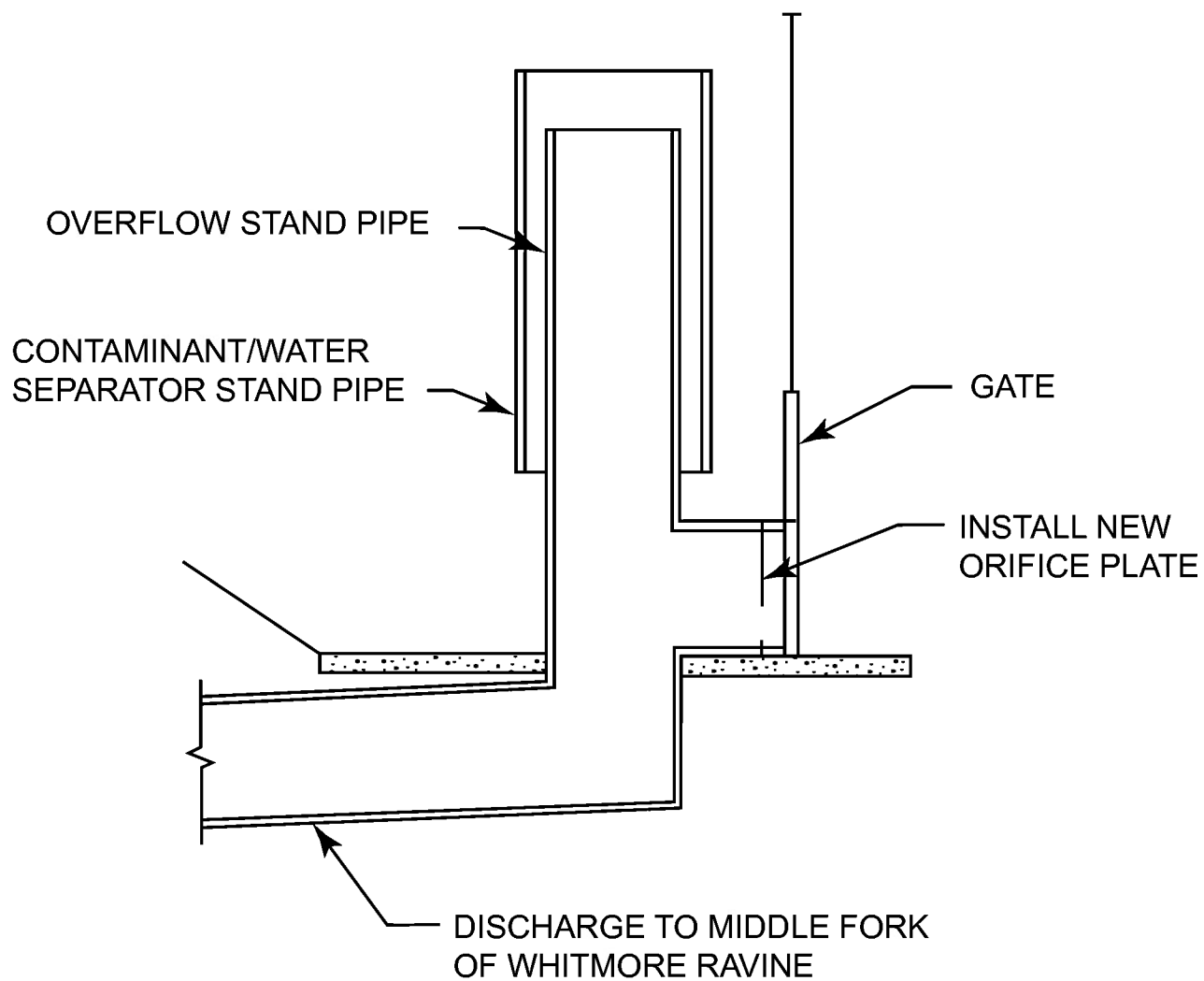


Figure 6

Modified Outlet Structure at Outfall #3 - Cross Section
 EA for Construction of Storm Water Detention System
 at Storm Water Outfall #3 at Malmstrom AFB, MT

Source: Type A Submittal Final for Retention Area,
 Outfall #3, October 2006.

Detention Pond Design

The proposed detention pond was sized to restrict outflow from the pond to below 12.9 cfs. The pond shown in Figure 7 would store approximately 494,700 cubic feet (cu ft) of water and reduce outflow to the Middle fork of Whitmore Ravine to 12.7 cfs. Construction of the pond would require approximately 10,400 cubic yards (cu yd) of material to be excavated. The 341 Civil Engineering Squadron (341 CES/CEV) would determine the location of the storage site for excavated clean fill material prior to construction. Table 1 summarizes the proposed pond design.

Table 1
Pond Design Summary

Description	Total Pond Storage (cu yds)	Total Cut & Fill (cu yds)	Disturbed Area (acres)	Peak Inflow (cfs)	Max. Pond Depth (ft)	Peak Outflow (cfs)
Pond sized for 10-year 24-hour storm	18,324	10,400	3	34.7	11.4	12.9

The Montana Department of Natural Resources and Conservation (DNRC) requires a downstream hazard classification for reservoirs, which include detention ponds, more than 50 acre-feet in storage volume. The detention pond storage is predicted to be 11.4 acre-feet for the 10-year 24-hour storm. Therefore, no permit is required for this project.

The Natural Resource Conservation Service (NRCS) Water Rights Bureau in Lewiston was contacted regarding possible water right filing requirements. Based on information provided by the NRCS, water detained in the pond is not used for any beneficial use and no water right permits would be required for the proposed project (*Type A Submittal Final for Retention Area, Outfall #3*, October 2006).

The slope of fill for the proposed project would be constructed to a maximum 3:1 slope. To ensure slope stability of the old Milwaukee Railroad fill when used for a detention pond impoundment structure, the current design includes an embankment and a retaining wall with gabions.

2.2 NO ACTION ALTERNATIVE

While the No Action Alternative does not satisfy the purpose and need for the project, it is included in the environmental analysis to provide a baseline for comparison with the proposed action and is analyzed in accordance with CEQ regulations for implementing NEPA.

Under the No Action Alternative, the storm water detention pond would not be built. Without this system, there would be no assurances of proper drainage and reduced flow rates of storm water off base. Erosion issues would remain an issue for the installation.

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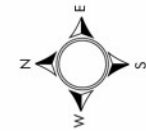
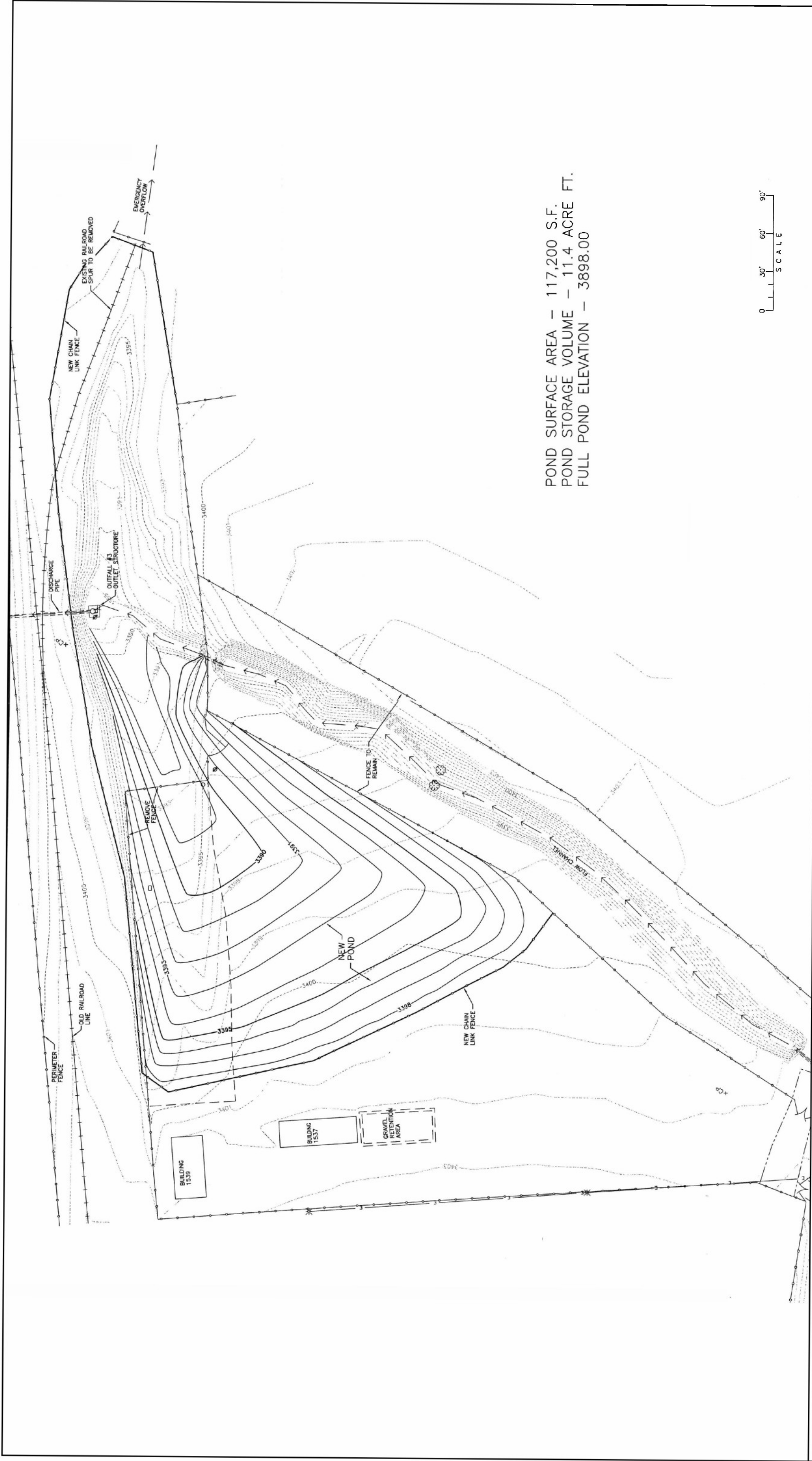


Figure 7

Proposed 10-Year 24-Hour Pond

EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

Source: Type A Submittal Final for Retention Area, Outfall #3, October 2006.

2.3 ALTERNATIVES CONSIDERED BUT DISMISSED

Other design options for the proposed storm water detention pond were investigated during project development. One alternative scenario included constructing a pond suitable to detain water from a 100-year (24-hour and 2-hour) storm event. This alternative was dismissed from further consideration due to high costs, a considerably larger footprint, and would not easily adapt to the available site. The second alternative included a design to detain all water from a 10-year storm event in the pond, rather than discharging, and using this water for irrigation. This alternative was dismissed from further consideration due to high costs and a resulting loss of riparian vegetation.

2.4 COMPARISON OF ALTERNATIVES

Table 2 compares the impacts to resources analyzed in this EA for the Proposed Action, and the No Action Alternative for the project.

Table 2
Comparison of Alternatives with Resource Impacts

Resources	Proposed Action	No Action Alternative
Air Quality	-	0
Noise	-	0
Soils	-	0
Water Resources	+	-
Hazardous Materials and Waste	0	0
Solid Waste and Pollution Prevention	0	0

- = Adverse, but not significant, short-term or long-term impacts.

+ = Positive/beneficial short-term or long-term impact.

0 = No change, short-term or long-term.

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SECTION THREE Affected Environment and Environmental Consequences

3.1 METHODOLOGY FOR ASSESSMENT OF IMPACTS

This section describes the affected environment (existing conditions) for air quality, noise, soils, water resources, hazardous materials and waste, and solid waste pollution prevention, as well as the potential impacts resulting from the implementation of the Proposed Action.

Potential impacts were identified and assessed for each environmental issue by comparison to existing conditions, which is the No Action Alternative. Impact areas utilized throughout this section were derived based on the following. The permanent disturbance of the pond is estimated to be 3 acres (or approximately 117,200 sq ft). The temporary construction impacts are resource-specific and discussed in the appropriate sections below.

Impacts are described by intensity (minor/moderate), timing (construction vs. operation), mode of action (direct/indirect), and duration of impact (short-term/long-term), where applicable.

3.2 AIR QUALITY

3.2.1 Affected Environment

This section describes existing air quality standards and air quality at Malmstrom AFB; and climatic and meteorological conditions that influence the quality of the air in the area around Malmstrom AFB.

The type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences determine air quality. Comparing these values to federal and/or state ambient air quality standards determine the significance of a pollutant concentration in a region or geographical area. Under the authority of the CAA, the USEPA has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety.

These federal standards, the National Ambient Air Quality Standards (NAAQS), represent the maximum allowable atmospheric concentrations and were developed for six “criteria” pollutants: ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), respirable particulate matter less than 10 micrometers in diameter (PM₁₀), sulfur dioxide (SO₂), and lead (Pb). Based on measured ambient criteria pollutant data, the USEPA designates areas of the U.S. as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (nonattainment). Nonattainment areas that achieve attainment are subsequently redesignated as maintenance areas for a period of 10 or more years. Areas are designated as unclassifiable for a pollutant when there is insufficient ambient air quality data for the USEPA to form a basis of attainment status. For the purpose of applying air quality regulations, unclassifiable areas are treated similar to areas that are in attainment of the NAAQS.

In 1997, the USEPA promulgated two new standards: a new 8-hour O₃ standard (which will eventually replace the existing 1-hour O₃ standard) and a new standard for particulate matter less than 2.5 micrometers in diameter (PM_{2.5}), which are fine particulates that have not been previously regulated. In addition, the USEPA revised the existing PM₁₀ standard. The two new standards are scheduled for implementation over the next few years, as monitoring data becomes

SECTION THREE Affected Environment and Environmental Consequences

available to determine the attainment status of areas in the U.S. Meanwhile, the USEPA will enforce the existing 1-hour O₃ standard for areas that are still in nonattainment of the standard. Under the CAA, state and local agencies may establish ambient air quality standards (AAQS) and regulations of their own, provided these are at least as stringent as the federal requirements. For selected criteria pollutants, the State of Montana has established its state AAQS, some of which are more stringent than the federal standards. Montana AAQS are more restrictive than federal standards for CO, NO₂, O₃, and SO₂. Montana does not have state standards for PM_{2.5}. In addition, Montana regulates emissions of settleable particulates, visibility, fluoride in foliage, and hydrogen sulfide (H₂S), for each of which no federal standards exist. A summary of the federal and Montana AAQS that apply to the proposed project area is presented in Table 3.

Table 3
Montana and Federal Ambient Air Quality Standards

Air Pollutant	Averaging Time	Montana AAQS	Federal (NAAQS)	
			Primary	Secondary
Carbon Monoxide (CO)	8-hour	9 ppm	9 ppm	---
	1-hour	23 ppm	35 ppm	---
Nitrogen Dioxide (NO ₂)	AAM	0.05 ppm	0.053 ppm	0.053 ppm
	1-hour	0.30 ppm	---	---
Sulfur Dioxide (SO ₂)	AAM	0.02 ppm	0.030 ppm	---
	24-hour	0.10 ppm	0.14 ppm	---
	3-hour	---	---	0.50 ppm
	1-hour	0.50 ppm	---	---
Particulate Matter (PM ₁₀)	AAM	50 µg/m ³	50 µg/m ³	50 µg/m ³
	24-hr	150 µg/m ³	150 µg/m ³	150 µg/m ³
Particulate Matter (PM _{2.5}) ^(a)	AAM	---	15 µg/m ³	15 µg/m ³
	24-hour	---	65 µg/m ³	65 µg/m ³
Ozone (O ₃) ^(b)	1-hour	0.10 ppm	0.12 ppm	0.12 ppm
	8-hour	---	0.08 ppm	0.08 ppm
Lead (Pb) and Lead Compounds	Calendar Quarter	---	1.5 µg/m ³	1.5 µg/m ³
	90-days	1.5 µg/m ³	---	---
Settleable Particulates (TSP)	30-day	10 g/m ²	---	---
Hydrogen sulfide (H ₂ S)	1-hr(d)	0.010 ppm	---	---
	½-hr(e)	0.100 ppm	---	---
	½-hr(f)	0.030 ppm	---	---
Fluoride in foliage	1-month	50 µg/g	---	---
	grazing season	35 µg/g	---	---
Visibility	AAM	3 x 10 ⁻⁵ /m	---	---

Notes: AAM = Annual Arithmetic Mean; AGM = Annual Geometric Mean.
ppm = parts per million; µg/m³ = micrograms per cubic meter.

(a) The PM_{2.5} standard (particulate matter with a 2.5-micron diameter) was promulgated in 1997, and will be implemented over an extended time frame. Areas will not be designated as in attainment or nonattainment of the PM_{2.5} standard until the 2003 – 2005 timeframe.

(b) The 8-hour Ozone standard was promulgated in 1997, and will eventually replace the 1-hour standard. The USEPA plans to implement this standard beginning in 2004. During the interim, the 1-hour ozone standard will continue to apply to areas not attaining it.

Sources: §40 CFR 50; USFS 2000.

SECTION THREE Affected Environment and Environmental Consequences

For nonattainment regions, the states are required to develop a State Implementation Plan (SIP) designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS by specific deadlines.

Section 162 of the CAA further established a national goal of preventing degradation or impairment in federally designated Class I areas. Class I areas are defined as those areas where any appreciable degradation in air quality or associated visibility impairment is considered significant. As part of the Prevention of Significant Deterioration (PSD) program, Congress assigned mandatory Class I status to all national parks, national wilderness areas (excluding wilderness study areas or wild and scenic rivers), and memorial parks greater than 5,000 acres. Class II areas are those where moderate, well-controlled growth could be permitted. Class III areas are those designated by the governor of a state as requiring less protection than Class II areas. No Class III areas have yet been so designated. The PSD requirements affect construction of new major stationary sources in the PSD Class I, II, and III areas and are a pre-construction permitting system.

CAA Section 169A established the additional goal of prevention of further visibility impairment in the PSD Class I areas. Visibility impairment is defined as a reduction in the visual range and atmospheric discoloration. Determination of the significance of an activity on visibility in a PSD Class I area is typically associated with evaluation of stationary source contributions. The USEPA is implementing a Regional Haze rule for PSD Class I areas that will also address contributions from mobile sources and pollution transported from other states or regions. Emission levels are used to qualitatively assess potential impairment to visibility in PSD Class I areas. Decreased visibility may potentially result from elevated concentrations of PM₁₀ and SO₂ in the lower atmosphere.

Malmstrom AFB is located in Montana Air Quality Control Region (AQCR) 141, which covers north central Montana. Mandatory PSD Class I areas for the state of Montana are listed under 40 CFR 81. Lewis and Clark National Forest, Scapegoat Wilderness, Helena National Forest, and Gates of the Mountain Wilderness are Class I areas but are not within 50 miles of the project area and Malmstrom AFB. The Flathead Indian Reservation, west of Great Falls, is a non-mandatory Tribal Class I area, which requires similar protection as mandatory Class I areas.

CAA Section 176(c), General Conformity, established certain statutory requirements for federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with the each state's SIP for attainment of the NAAQS. In 1993, the USEPA issued the final rules for determining air quality conformity. Federal activities must not:

- cause or contribute to any new violation;
- increase the frequency or severity of any existing violation; or
- delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases.

SECTION THREE Affected Environment and Environmental Consequences

The Proposed Action would occur within Cascade County, Montana. According to federally published attainment status for Montana in §40 CFR 81, Cascade County is designated as in attainment, better than the national standards, or unclassified for CO, NO₂, SO₂, PM₁₀, O₃, and Pb. Based on recent monitoring data, the USEPA projects that the Cascade County will be in attainment of the new 8-hour ozone and PM_{2.5} NAAQS when designations are made in the near future (USEPA 2002). Monitoring data in Cascade County indicate generally good air quality.

Climatology and Meteorology

Malmstrom AFB, located in north central Montana, is on the dry eastern side of the Rocky Mountains and has a modified semiarid continental type climate. Summertime is generally pleasant, with cool nights, moderately warm and sunny days, and very little hot, humid weather. Winters are milder than would be expected of a continental location at this latitude because of the frequent occurrence of warm down slope winds (Chinooks) that produce temperature changes of 40° F or greater in 24 hours. July is generally the warmest month, with a mean daily high temperature of 83.6 degrees Fahrenheit (°F). January is usually the coldest month, with a mean daily low temperature of 12.5 °F. The growing season averages 135 days per year (USACE 2005).

Humidity and precipitation are usually low, with associated large fluctuations in daily and seasonal temperatures. Average annual precipitation is 15 in. Most of the precipitation that occurs during the late fall, winter, and early spring falls as snow, but Chinook winds prevent large accumulations. Average annual snowfall is 43.6 in. The prevailing winds are from the southwest year round and are generally moderate with speeds exceeding 25 miles per hour (mph) only two percent of the time. Based on the average annual precipitation, the area would normally be classified as semi-arid, but about 70 percent of the annual rainfall typically occurs during the April to September growing season, so the climate is favorable for dry land farming (USACE 2005). Table 4 presents average monthly temperatures, precipitation, humidity, and wind speed data from the nearest National Weather Service station in Great Falls, Montana.

SECTION THREE Affected Environment and Environmental Consequences

Table 4
Climate Data for Great Falls, MT

Month	Temperature		Precipitation		Relative Humidity ^(a)	Wind ^(b)	
	Mean Daily Max °C (°F)	Mean Daily Min °C (°F)	Mean Total cm (in)	Mean Snow cm (in)	Mean (%)	Mean Speed m/s (mph)	Prevailing Direction
January	-0.5 (31.1)	-10.8 (12.5)	2.06 (0.81)	25.1 (9.9)	62	6.8 (15.3)	SW
February	2.3 (36.2)	-8.7 (16.3)	1.70 (0.67)	21.6 (8.5)	59	6.4 (14.3)	SW
March	5.8 (42.5)	-5.5 (22.1)	2.56 (1.01)	26.4 (10.4)	55	5.8 (13.0)	SW
April	12.9 (55.2)	0.2 (32.4)	3.15 (1.24)	18.5 (7.3)	47	5.1 (12.9)	SW
May	18.4 (65.1)	5.3 (41.4)	6.25 (2.46)	4.6 (1.8)	46	5.0 (11.4)	SW
June	22.9 (73.3)	9.5 (49.1)	6.75 (2.66)	0.8 (0.3)	44	4.5 (11.2)	SW
July	28.7 (83.6)	12.7 (54.9)	3.23 (1.27)	Trace	37	4.6 (10.1)	SW
August	27.6 (81.6)	11.9 (53.4)	3.40 (1.34)	Trace	39	5.1 (10.2)	SW
September	21 (69.8)	7.1 (44.7)	3.15 (1.24)	4.1 (1.6)	46	5.9 (11.3)	SW
October	15.1 (59.2)	2.6 (36.7)	1.96 (0.77)	7.9 (3.1)	46	6.5 (13.2)	SW
November	6.4 (43.6)	-3.7 (25.3)	1.82 (0.72)	19.1 (7.5)	54	7.0 (14.6)	SW
December	1.7 (35.0)	-8.2 (17.3)	1.85 (0.73)	22.6 (8.9)	60	7.4 (15.6)	SW
Annual	13.6 (56.4)	0.99 (33.8)	37.90 (14.9)	150.6 (59.3)	50	5.7 (12.8)	SW

Notes: °C = degrees Celsius; °F = degrees Fahrenheit; cm = centimeter; in = inches;
m/s = mean speed; mph = miles per hour.

^(a) Relative humidity measured at 11:00 a.m.

^(b) Wind speed based on 1941-90 period; prevailing direction through 1963.

Source: Bair 1992.

3.2.2 Standards of Significance

The significance of impacts to air quality is based on federal, state, and local pollution regulations or standards. The proposed project would result in an adverse air quality impact if the activities associated with its construction or operation:

- Increase ambient air pollution concentrations above any NAAQS;

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- Contribute to an existing violation of any NAAQS;
- Interfere with or delay timely attainment of NAAQS; or
- Impair visibility within any federally mandated federal Class I area.

3.2.3 Impacts

Proposed Action

Emissions at military installations generally include CO, volatile organic compounds (VOCs), nitrogen oxides (NO_x, commonly measured as NO₂), sulfur oxides (SO_x, commonly measured as SO₂), and PM₁₀. Although O₃ is considered a criteria pollutant and is measurable in the atmosphere, it is not often considered a pollutant when reporting emissions from specific sources. O₃ is not typically emitted directly from most emissions sources; it is formed in the atmosphere from its precursors (NO_x and VOCs), which are directly emitted from various sources. Thus, NO_x and VOCs are commonly reported instead of O₃. Sources of pollutants include stationary sources (fossil fuel combustion and fuel or solvent evaporation), construction activities, and mobile sources.

The Proposed Action is a construction project not unique to a military installation. Construction activities produce short-term combustion emissions (exhaust emissions from heavy equipment) and fugitive dust emissions (PM₁₀), which would cease once construction is completed. Construction activities associated with the Proposed Action would create short-term fugitive dust emissions from the following activities:

- Site grading (scrapping, bulldozing, and compacting)
- Excavation
- Utilities trenching
- Material handling (soils, aggregate, and construction debris/waste)
- Vehicle travel on paved and unpaved roads
- Pond construction
- Landscape and turf installation
- Miscellaneous emissions (equipment track out, windblown dust, etc.)

However, emissions generated by construction projects are short-term and temporary in nature. Fugitive dust emissions generated from construction of the proposed storm water detention pond system would depend on the extent and duration that the activities listed above are performed to complete the project. Best Management Practices (BMPs) that can be instituted onsite to minimize fugitive dust emissions may include the application of water or other chemical stabilizers on exposed earth surfaces, and other preventive techniques. The following techniques have been shown to be effective for controlling the generation and migration of dust during construction and vehicle and equipment travel activities:

- Keeping roads clean and free of dirt spilled or tracked from construction equipment

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- Applying water on haul roads and other exposed earth surfaces
- Hauling materials in properly covered or watertight containers
- Restricting vehicle speed to 10 mph
- Covering excavated areas and material after excavation activity ceases
- Reducing the excavation size and/or number of excavations (URS 2005).

Using the above-mentioned dust suppression techniques (within reason) would not create excess water, but would result in acceptable wet conditions. In addition, control techniques, such as chemical stabilization, reduction of surface wind speed with windbreaks (snow fence, silt fence), or source enclosures (netting, mulching) could be employed to suppress dust generation and migration without the use of water.

Additional preventive techniques may entail periodic street and access road sweeping, expeditious cleanup of materials spilled on paved or unpaved travel surfaces, gravelling of dirt access roads and work areas, the elimination of mud/dirt carryout on paved roads at construction sites, and vehicle washing. These measures would aid in preventing or reducing the deposition of materials that could become airborne through vehicle and equipment traffic or by wind.

Combustion emissions would be generated from operation of heavy equipment during the ground disturbance phase of construction, delivery of materials to the base, and commuting by contractor employees to the base in their personal vehicles. Pollutants from vehicle and heavy equipment exhaust include NO_x, CO, PM₁₀, and VOCs.

The Proposed Action would not increase the number of stationary sources at the Base and would not result in a net permanent increase in vehicular traffic. Therefore, the overall impact to air resources from the Proposed Action is likely to be direct, short-term and not significant.

No Action Alternative

The No Action Alternative would not result in any impacts to ambient air quality conditions of the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.2.

3.3 NOISE

3.3.1 Affected Environment

Noise is defined as unwanted sound. Human response to noise is subjective and can vary greatly from person to person. Factors that can influence an individual's response to noise include the magnitude of the noise as a function of frequency and time pattern. The amount of background noise present before an intruding noise occurs, and the nature of the work or activity (e.g., sleeping) that the noise affects, can also influence a person's level of annoyance. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height of depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the

SECTION THREE Affected Environment and Environmental Consequences

ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

The unit used to measure the loudness of noise is the decibel (dB). A dB indicates the relative amplitude of a sound. Most community noise standards utilize A-weighted decibels as the measure of noise, as it provides a high degree of correlation with human annoyance and health effects. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to functioning of the human ear. Because sound levels can vary markedly over a short period, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The Air Installation Compatible Use Zone (AICUZ) program was initially established by DoD in response to the Noise Control Act of 1972 to promote an environment free from noise that jeopardizes public health or welfare. The noise zones and the accident potential zones together form the AICUZ for an air installation. AICUZ also serves to protect Air Force airfields from encroachment and incompatible land development.

The most recent installation AICUZ analysis was completed in 1994, when the 301 Air Refueling Wing was still assigned to Malmstrom AFB (USAF 1994a). The base does not currently host an active air wing, thus the runway is currently inactive, with the exception of Huey helicopters, a subordinate flight of the 341 SW Operations Group. The 1994 AICUZ analysis shows the proposed project area outside of the 65 dB contour.

3.3.2 Standards of Significance

The proposed project would result in an adverse noise impact if it resulted in conditions that violated established noise guidelines.

3.3.3 Impacts

Noise levels below the 65 dB level are not considered constraints to development. However, once the noise level meets or exceeds the 65 dB level, different functions, such as residential, administrative, commercial, and recreational, have different thresholds at which noise level reduction measures are recommended for facility design or at which no construction is permitted. Impacts would be considered adverse if there are long-term increases in the number of people highly annoyed by the noise environment, noise-associated adverse health effects to individuals, or unacceptable increases to the noise environment for sensitive receptors. A sensitive receptor is any person or group of persons in an environment where low noise levels are expected, such as schools, day care centers, hospitals, and nursing homes. This impact section analyzes the noise impacts to the surrounding site location and area.

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Proposed Action

The Proposed Action is a construction project not unique to a military installation. Noise impacts from the Proposed Action would be short-term, and primarily from construction activities. Noise created from construction activities could have minor on- and off-site effects.

Construction activities produce construction-related noise from sources such as diesel engines on construction equipment (e.g., backhoes, front-end loaders, dump trucks), air compressors and jackhammers to demolish concrete structures, back-up horns on construction equipment, and movement of construction materials. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft from the center of the project site (URS 2005). Noise levels at 50 ft for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91 dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. In addition, the construction of the proposed project is anticipated to occur during one construction season and construction. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site construction is complete. The effects of noise during construction of the proposed project are expected to be minor, short-term and would be consistent with acceptable noise levels on Malmstrom AFB.

One of the most essential elements in ensuring that noise impacts do not reach a level of significance is requiring that construction occur during daytime hours and on weekdays. All internal combustion engine-driven equipment should be equipped with mufflers that are in good condition. Although the construction traffic will have increased noise levels, they are not unlike the current intermittent industrial activity in the vicinity.

No noise impacts as a result of a detention storm water system are expected once construction is complete. Therefore, noise impacts due to construction activities as a result of the Proposed Action are expected to be negligible and short-term.

No Action Alternative

Under the No Action Alternative, noise would remain at current levels. No change in existing noise conditions would occur.

3.4 SOILS

3.4.1 Affected Environment

Malmstrom AFB is located in a glaciated portion of the Missouri Plateau which is in the northern part of the Great Plains Province. The base is underlain by the Sweetgrass Arch, a bedrock structural feature extending northwest between the Little Belt Mountains, 24 miles to the south, past the base on the southwestern side and into Alberta, Canada. Stratigraphic units important to the framework of the region surrounding Malmstrom range in age from the Madison Limestone of the Mississippian era (360 million years) to the Eolian Sand of the Holocene (10,000 years). These units include sedimentary bedrock formations, unconsolidated glacial deposits, and

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windblown deposits. The occurrence of geologic hazards in the study area is low. The proposed project area does not include major areas of steep slopes

In the vicinity of Malmstrom AFB, Quaternary glacial deposits overlie Early Cretaceous shale and sandstone formations. The modern soils of Malmstrom AFB have developed directly on these Quaternary deposits and consist primarily of Lawther silty clay (associated with the Pleistocene till) and Dooley sandy loam (associated with the Holocene eolian sand) (SCS 1982). These two series encompass approximately 75 percent of the base. Other soils on base include sandy loams, loamy sands, and alluvial silty clay loams. Most of the soils on Malmstrom AFB are not highly subject to wind or water erosion.

The proposed project area is the location of a former IRP site (see discussion in Section 3.6) and has undergone cleanup and closure. Approximately 920 cu yd of contaminated on-site soils were removed to a depth of 0.5-2 feet below ground surface (bgs) and properly disposed of, and clean soil and gravel were placed, graded, and compacted on the site (341 CES/CEVC 2004).

3.4.2 Standards of Significance

The proposed project would result in an adverse impact if soils classified as prime and unique farmland were affected or if the soils affected were considered unsuitable for development.

3.4.3 Impacts

Proposed Action

Slopes within the larger study area are generally gentle. The proposed project area is generally flat because of the former Installation Restoration Program (IRP) site cleanup and closure, which included grading and compaction (see discussion in Section 3.6). However, water and wind erosion could occur during construction activities. Engineering controls, such as those described in Section 3.1, would reduce these impacts to below significant levels. Under the Proposed Action, approximately 3 acres of soils would be permanently impacted from construction activities.

Preparation of Stormwater Pollution Prevention Plans (SWPPPs) are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or could be stock piled for use at other locations on Malmstrom AFB. Implementation of BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

No adverse impacts on soil resources are expected under the Proposed Action.

No Action Alternative

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

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3.5 WATER RESOURCES

3.5.1 Affected Environment

Surface Water

The Missouri River, located about 1 to 1.5 mi north of Malmstrom AFB, is the primary surface water drainage in the region. There are nine delineated drainage basins at Malmstrom AFB (Figure 8). Drainage basins 1 through 6 discharge to the north. The surface drainage is directed into pipes, coulees, or ditches that flow to the north via Outfall #3, entering one of the branches of an unnamed coulee (locally referred to as Whitmore Ravine), before discharging into the Missouri River (Figure 9). Drainage basins 7, 8, and 9 do not have a point discharge (341 CES/CEVC 2006a).

Whitmore Ravine is located within the Upper Missouri-Dearborn Hydrologic Basin Hydrologic Unit Code 10030102) and Missouri-Sun-Smith Watershed. The storm water drainage from Malmstrom AFB flows into Segment 13 of the Missouri River (Water Body Number MT41Q001_013), which consists of a 10.2-mi stretch from the Rainbow Dam to the Morony Dam (URS 2004). This segment currently has no USEPA approved Total Maximum Daily Loads (TMDLs) (USEPA 2006). The Montana Department of Environmental Quality (MDEQ) April 2006 TMDL for this water body is not scheduled to start until after 2009.

Although currently there are no TMDLs, Segment 13 of the Missouri River has been identified by the USEPA and the MDEQ as being impaired from its beneficial use as a B-3 water body on the 303(d) list published in April 2006. The MDEQ has identified arsenic (As), copper (Cu), pentachlorobenzene (PCB), sedimentation/siltation, water temperature, and turbidity as probable causes of the river's impairment (MDEQ 2006).

Groundwater

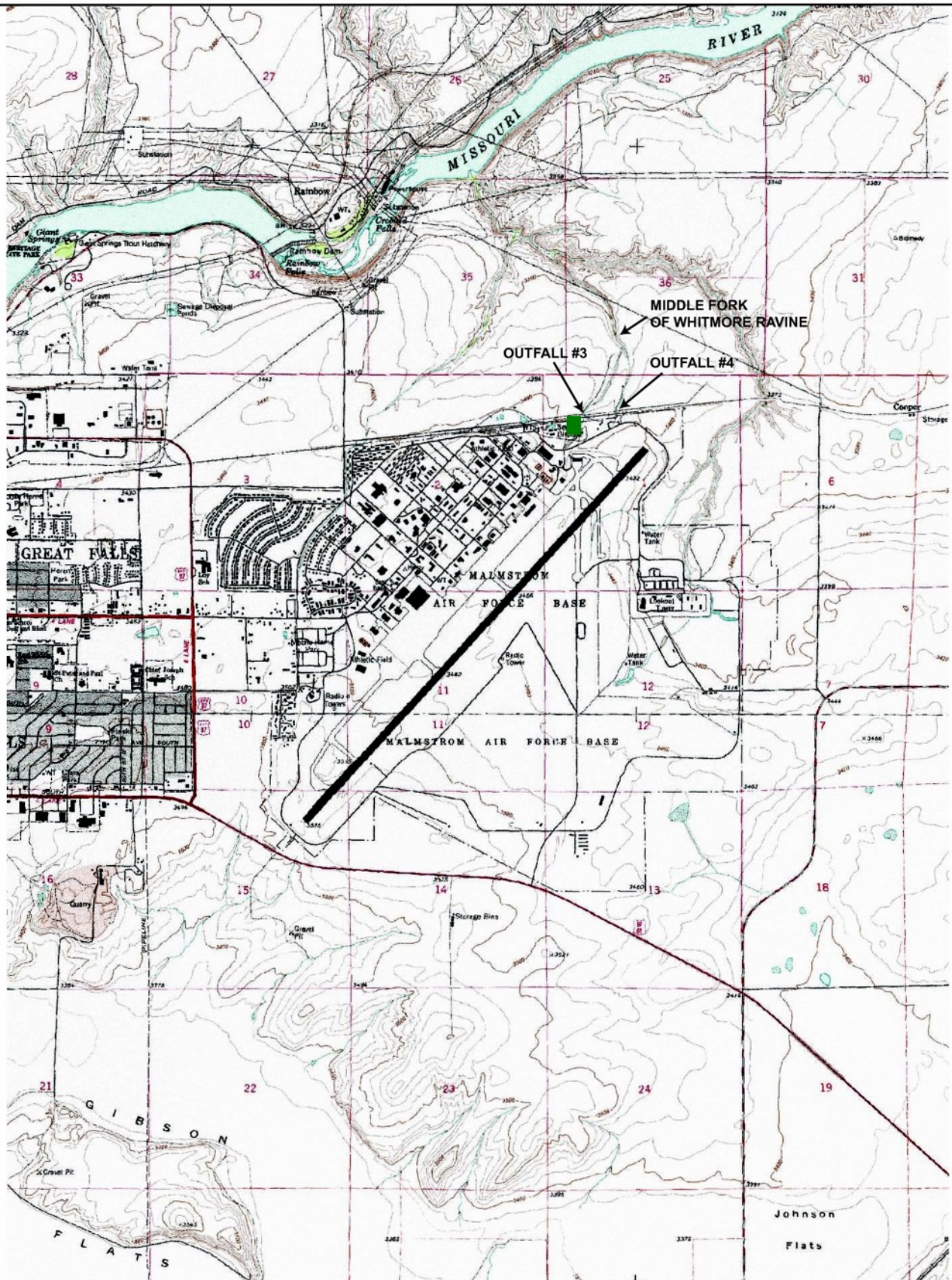
Groundwater resources exist in the project area and occur primarily in deep, confined aquifers (e.g., the Madison-Swift aquifer). The depth to these deep aquifers ranges between approximately 100 ft and 200 ft bgs at the base. Shallow groundwater is less than approximately 25 ft to 40 ft bgs and occurs locally as noncontiguous, unconfined, perched zones. The deep confined aquifers in the area tend to flow northward. Flow in the shallow, unconfined aquifers typically follows topographic gradients.

The deep Madison-Swift aquifer has the greatest potential for future groundwater development. Because of the limited supply of water and discontinuous nature of the shallow perched zones, they are unlikely to be used as a water source in the future. Due to the ample surface water supply and the depth of most of the aquifers, groundwater resources have not been developed on the base (USACE 2005).

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0 1,800 3,600 7,200
Scale in Feet

Legend

■ Proposed Project Area

Figure 8

Receiving Waters at Malmstrom Air Force Base

EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT



Figure 9

Storm Water Outfall #3 Discharge to Middle Fork of Whitmore Ravine
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

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The glacial tills have served as an impermeable barrier and have protected the usable aquifer that lies over 100 ft bgs. The tills have generally limited the migration of contaminants.

Storm Water

Storm water is considered a wastewater discharge by the CWA. Storm water is discharged from the base in accordance with the following MPDES General Permits issued by the MDEQ.

- General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit), Permit No. MTR 000 197
- General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Permit No. MTR 100 000
- General Permit for Storm Water Discharges Associated with Small Municipal Separate Storm Sewer System (Municipal General Permit), Permit No. MTR 040 008

Although the Construction General Permit (Permit No. MTR 100 000) expired on December 31, 2006, the permit is administratively still active until the MDEQ has published the new Construction General Permit. Construction activities for the Proposed Action would be permitted under the replacement for this General Permit. Also, the Industrial General Permit was reissued effective October 1, 2006 under Permit No. MTR 000 197. The Municipal General Permit remains in effect until the end of 2009.

Precipitation that falls or melts in the study area is managed in accordance with the Malmstrom AFB SWPPP (341 CES/CEVC 2006a), the Malmstrom AFB Storm Water Management Program (SWMP) (Ecosystem Research Group 2006b) and site specific construction SWPPPs developed for each project. All three permit types and their respective plans mandate that construction discharges be managed through BMPs, as appropriate.

3.5.2 Standards of Significance

A proposed project would result in an adverse water resources impact if the project were to impact surface water, groundwater, or water quality.

Adverse surface and groundwater impacts would result if existing water resources were directly or indirectly impacted from the detention storm water system.

A proposed project would result in water quality impacts if federal or state water quality regulations and standards were violated or if the project did not meet water design requirements. Such violations could involve either surface water or groundwater.

3.5.3 Impacts

Potential surface water impacts would include disruption of natural water flows, contamination entering storm water discharge, or heavy sediment loading from construction activities. Preparing and implementing a site-specific SWPPP can minimize adverse impacts. This plan is required by the MPDES program for construction projects with a total area of disturbance equal to or greater than one acre. The goal of a SWPPP is to provide construction and post-construction BMPs to control and manage the loading of sediment and other pollutants to levels sufficient to protect downstream water quality.

SECTION THREE Affected Environment and Environmental Consequences

Proposed Action

This project does not propose an increase in impervious surfaces. Therefore, it is not anticipated that there would be an increase in surface water runoff due to this project. Although the existing flows would be changed, the same volume of water would be discharged. In fact, the detention of storm water under the Proposed Action would have a long-term beneficial impact on both potential water quality and potential downstream flooding. Therefore, the Proposed Action would have short- and long-term beneficial effects on natural water flows.

Construction activities typically produce short-term minor adverse impacts to water quality in the form of increased turbidity or contamination from construction equipment due to accidental leaks or spills of fuels or oil. Under MPDES requirements, a project with a total area of disturbance equal to or greater than 1 acre requires coverage under the Construction General Permit. The Proposed Action would disturb more than 1 acre and possibly more than 5 acres considering the entire proposed project area, lay down and staging areas, temporary parking, construction trailers, temporary access roads, spoil piles, and borrow areas. Therefore, coverage under the MPDES Construction General Permit for the construction area would be required as well as preparation and implementation of a site-specific SWPPP, including sediment and erosion control measures.

For the short-term, implementation of these control measures would prevent or mitigate contamination entering the storm water discharge or heavy sediment loading from construction activities. The Proposed Action would improve the long-term quality of stormwater discharges.

The MDEQ impairment listing for Segment 13 of the Missouri River identifies sedimentation/siltation and turbidity as probable causes for the impairment. Therefore, it is critical that the design, inspection, and maintenance of construction BMPs prevent the discharge of sediment to the maximum extent practical.

Shallow perched groundwater and surface water could experience short-term impacts due to leaks or spills of contaminants during construction (e.g., fuels, lubricants) of a storm water system. However, these potential contaminants would not be expected to enter the deeper confined aquifers. The Construction General Permit requires inclusion and implementation of BMPs in the SWPPP to address spill or leaks due to construction and maintenance practices.

Depth to groundwater is greater than 25 ft to 40 ft bgs. The proposed bottom of the pond would be anywhere from 3 ft to 13 ft bgs. The proposed project site is the location of a former IRP site (Site SS-09), which is identified as the former pole yard storage area (see detailed description in Section 3.6). Soil sampling of groundwater and soils was completed in 1996, and resulted in the excavation of contaminated soils and the placement of clean soil and gravel prior to the closure of IRP site SS-09.

With proper implementation of BMPs, the overall impact to water resources from the Proposed Action is likely to be direct, short-term, and not significant.

No Action Alternative

Water resources would remain as they currently are under the No Action Alternative. Therefore, no significant impacts to water resources are anticipated.

SECTION THREE Affected Environment and Environmental Consequences

3.6 HAZARDOUS MATERIALS AND WASTE

This section discusses hazardous materials and waste issues at Malmstrom AFB related to construction of the Proposed Action. This discussion includes Malmstrom AFB IRP sites and contaminants of concern at the base. Solid waste and pollution prevention is addressed in Section 3.7.

3.6.1 Affected Environment

The MDEQ regulates waste management, toxic substance reporting, and investigation and cleanup of contaminated sites. The State of Montana also provides technical and financial assistance for occupational health concerns such as asbestos control, radon emissions, and drinking water.

At Malmstrom AFB, the solid and hazardous waste programs are managed by the 341 CES/CEV. The responsibility to develop a Spill Prevention, Control, and Countermeasures (SPCC) Plan, which provide procedures for spill reporting, containment, cleanup, and disposal, resides with the 341 CES/CEV. A site-specific SPCC plan will be required by the contractor if the contractor meets the threshold value of 1,320 gallons of petroleum, oils, and lubricants (POL) on site. In addition, hazardous materials brought on base by a contractor are the responsibility of the contractor for proper handling and disposal. The 341 CES/CEV provides regulatory guidance to Malmstrom AFB personnel regarding safe use, storage, and disposal of hazardous and toxic substances and has a pollution prevention program that includes minimization of hazardous wastes and recycling. The fire department requests support, as needed, from local volunteer departments in the event of a spill (USACE 2005).

Hazardous waste management consists of the collection, storage and transportation of hazardous wastes as defined by RCRA. A release of certain materials, such as JP-8 fuel, could result in the generation of hazardous wastes. Hazardous wastes are recorded and processed through the Environmental Management Office and Defense Reutilization and Marketing Office (USACE 2005).

Installation Restoration Program

The IRP is a program category under the Air Force Environmental Restoration Program (ERP). The scope of the IRP is investigation and cleanup of Air Force sites whose past activities created contamination primarily from hazardous substances, hazardous wastes, low level radioactive materials or wastes, or petroleum, oils and lubricants. Two IRP sites at Malmstrom AFB are either under investigation or undergoing cleanup activities (USACE 2005).

The proposed project area is the site of a former pole yard storage area (IRP Site SS-09 [Storm Water Management Unit (SWMU) IS-3]). This unit is an approximately 2-acre area where drums of waste and electrical equipment were historically stored. Contents of the drums were unknown. In 1996, a remediation contractor under contract to Malmstrom AFB commenced cleanup and closure activities at the former pole yard storage area. Soil sampling was conducted to determine areas of soil contamination above established action levels. The soil sampling revealed PCB contamination in excess of action levels at depths of up to 2 ft. No other

SECTION THREE Affected Environment and Environmental Consequences

1 constituents were found. Groundwater samples did not contain contaminants above action levels
2 (MDEQ 2001).

3 Based on the soil sampling results, the soils that contained PCB concentrations in excess of 1.6
4 milligrams per kilogram (mg/kg) were excavated and shipped to a RCRA-licensed incinerator.
5 A total of 2,777 tons of PCB-contaminated soil were removed and disposed. Clean soil and
6 gravel were placed, graded, and compacted, and the site is currently fenced.

Harmful Substances

7
8 Past spraying of herbicides has occurred throughout the base and may have been sprayed on the
9 Proposed Action site. Because herbicides used for base wide spraying were biodegradable and
10 would have dissipated from the soil in less than a year, any herbicides applied at the base in the
11 past would likely not be present at this time (USACE 2005).

12 A radon survey of the base was performed by the Bioenvironmental Engineering office in
13 September 1988. The results of that survey indicated that Malmstrom AFB was categorized as
14 Low Probability. This signifies that all structures sampled had less than 4 picocuries per liter
15 (pCi/L) of radon concentration. At this level of concentration, no further action is required
16 (USACE 2005).

17 There is an existing transformer at the proposed project area (Building 1537), however it does
18 not contain PCBs and includes secondary containment (341 CES/CEVC 2006b).



View to North



View to Northeast



View to East



View to South

Figure 10

Panoramic Views of Proposed Project Area
EA for Construction of Storm Water Detention System
at Storm Water Outfall #3 at Malmstrom AFB, MT

SECTION THREE Affected Environment and Environmental Consequences

3.6.2 Standards of Significance

The proposed project would cause adverse hazardous substances impacts if it were not compatible with current site hazardous materials conditions or solutions, or violated federal, state, or local regulations with respect to hazardous materials or waste. In addition, the impact would be considered adverse if development of the proposed project posed an unacceptable threat to human health or private property.

3.6.3 Impacts

This section discusses areas of potential environmental concern associated with construction of the Proposed Action.

Proposed Action

Hazardous material or waste issues identified at the proposed project area include the former pole yard storage area (IRP Site SS-09 [SWMU IS-3]). An IRP cleanup and disposal of PCB-contaminated soil to a depth of 2 ft resulted in closure of the site. Clean soil and gravel were placed at the proposed project site and the site is currently fenced. It is not anticipated that hazardous material or waste would be encountered during project construction, however, if hazardous wastes or materials are discovered during construction, the safe handling and management of materials present would adhere to appropriate state and federal regulations.

Because this is a construction project, worker safety is the primary health and safety concern during construction activities. Construction activities on-base are governed by the rules and regulations of the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) as codified in §40 CFR 1910 Occupational Safety and Health Standards.

No Action Alternative

No direct impacts to or from hazardous materials and wastes are expected as a result of the No Action Alternative.

3.7 SOLID WASTE AND POLLUTION PREVENTION

The USAF Pollution Prevention (P2) Program encompasses a range of environmental management functions, including recycling, hazardous/toxic chemicals reduction, green (environmentally friendly) procurement, and waste minimization. The USAF Solid Waste Program deals specifically with the management and reduction of solid waste streams.

At Malmstrom AFB, the solid waste program is managed by the 341 CES/CEV. Solid waste collection and disposal services are provided to the base by civilian contractors. Material is taken off-base to a private landfill.

Each Air Force base is required to have a Qualified Recycling Program (QRP), and all facilities at an installation must participate in the QRP. Under the QRP, readily accessible containers should be provided in work areas as appropriate for the accumulation of the following recyclables: copier paper, plastic, metals, glass, used oil, lead-acid batteries, cardboard,

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newspaper, and tires. A recycling contractor empties recycling containers on a regular schedule and recycles the collected materials.

Green Procurement is the USAF initiative established to comply with federal Affirmative Procurement requirements. Green Procurement seeks to direct USAF purchasing power toward the procurement of high recycled-content goods, Energy Star® and energy-efficient products, energy-efficient standby power devices, alternative fuel vehicles/alternative fuels, bio-based products, non-ozone depleting substances (ODS), and USEPA Priority Chemicals.

The USAF and agencies of the City of Great Falls, Cascade County, the State of Montana, and the federal government protect public health and safety at Malmstrom AFB. The city and county provide police protection and emergency services; the Cascade County Health Department is responsible for monitoring public health and safety issues such as drinking water quality and disease control.

3.7.1 Affected Environment

In addition to serving historically as the storage area for excess poles for the electrical shop at the base, the proposed project area also came to be used for unofficial storage of scrap and building material (Figure 10).

3.7.2 Standards of Significance

The Proposed Action would cause adverse impacts to solid waste and pollution prevention if it were not compatible with current USAF P2 practices, or violated federal, state, or local regulations with respect to the handling of solid waste. In addition, the impact would be considered adverse if development of the Proposed Action posed an unacceptable threat to human health or private property.

3.7.3 Impacts

Proposed Action

Storm water detention system construction and delivery of construction supplies would increase solid waste generation during the construction performance period. Materials that may be generated during pond excavation include excess demolition debris, excess lumber (i.e., poles), or other scrap material from past construction activities. Certain forms of construction-related solid waste might be eligible for diversion to recycling. Construction contractors should attempt to recycle waste materials for which a market exists, procure materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is limited to construction of a storm water detention system at Malmstrom AFB with little or no change to existing personnel and operations, no major changes to P2 initiatives or solid waste generation are anticipated following construction of the Proposed Action. Because this is a construction project, worker safety is the primary health and safety concern during construction activities. There are inherent risks associated with construction

SECTION THREE Affected Environment and Environmental Consequences

1 operations. The contractor selected to implement the Proposed Action will be subject to rigorous
2 safety management requirements associated with OSHA workplace safety practices (as codified
3 in §40 CFR 1910 Occupational Safety and Health Standards). If the required safety precautions
4 are enforced, no significant safety impacts are anticipated.

No Action Alternative

6 Under the No Action Alternative, solid waste generation at Malmstrom AFB would not increase.
7 Malmstrom AFB P2 solid waste management would be unaffected.

SECTION THREE **Affected Environment and Environmental Consequences**

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The CEQ regulations require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “the impact on the environment which result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial actions undertaken over a period of time by various agencies or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

Cumulative effects are most likely to arise when a relationship or synergism exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with, or in close proximity to, the Proposed Action would be expected to have more potential for a relationship than actions that may be geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects. To identify cumulative effects, this EA addresses three questions:

- (1) Does a relationship exist such that elements of the Proposed Action might interact with elements of past, present, or reasonably foreseeable actions?
- (2) If one or more of the elements of the Proposed Action and another action could be expected to interact, would the Proposed Action affect or be affected by impacts of the other action?
- (3) If such a relationship exists, does an assessment reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

In this EA, an effort has been made to identify all related actions under consideration or in the planning phase at this time. To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action in this EA, these actions are included in this cumulative analysis. This combined approach enables stakeholders to have the most current information available so that environmental consequences of the Proposed Action can be evaluated.

Adjacent Land Use

The proposed project area is bounded to the north by old Chicago, Milwaukee, St. Paul, and Pacific Railroad (Milwaukee Railroad). On the north side of the inactive railroad, lies the base perimeter fence. Agricultural land extends from the base to the Missouri River beyond. Bounding the eastern side of the proposed project area is an open storm ditch which drains through Outfall #3, under the Milwaukee Railroad right-of-way fill, and into the Middle Fork of Whitmore Ravine off of base property. On the east side of this open storm ditch is a fenced property used to store recreational vehicles (RVs) for personnel at Malmstrom AFB. To the south of proposed project area is an open vacant lot, which houses a former oil/water separator at the downstream exit of the open storm ditch. To the west of the proposed project area are base office/maintenance buildings, and the Heat Plant further to the west.

This cumulative impact analysis evaluates the incremental contribution of past, present, and planned or reasonably foreseeable actions on and adjacent to Malmstrom AFB.

Past and Present Actions Relevant to the Proposed Action

Malmstrom AFB is an active military installation that undergoes continuous change in mission and training requirements. This process of change is consistent with the U.S. defense policy that the Air Force must be ready to respond to threats to American interests throughout the world. The most recent mission change at Malmstrom AFB was in 1997 when the 819 RED HORSE Squadron was assigned to the base.

Military family housing has been or is being constructed on base in a multi-phased plan to upgrade all of the on-base family housing. Upgrades of over 1,400 housing units at Malmstrom AFB are being coordinated through phase-specific NEPA documents. The most recent phases (Phases 6 and 7) had a FONSI signed in November 2005, for a total of 797 homes to be constructed beginning in 2006. No housing projects are proposed within drainage area #3.

The base, like any other major institution, also requires new occasional construction, facility improvements, and infrastructure upgrades. The recent Heat Plant Upgrade has been categorically excluded from requiring an EA because the purpose of the project was maintenance. The Installation Commander signed a FONSI for the Corrosion Control Facility upgrade that was recently completed (USACE 2005).

The Air Force anticipates a continuing mission for Malmstrom AFB, but the specific nature of that mission and the military units stationed at Malmstrom AFB to undertake that mission are subject to change. The DoD released a Base Realignment and Closure list on May 16, 2005, and the realignment may result in restationing of additional units to Malmstrom AFB. Such a restationing action would require the completion of a separate EA at a later date (USACE 2005).

Off-site land adjacent and to the north of the proposed project area is primarily agricultural and has been used for dry-land farming for decades (see Figure 11 for adjacent land use).

Reasonably Foreseeable Future Actions Relevant to the Proposed Action

Land use planning at Malmstrom AFB follows a rational and sequential decision-making process to reach a consensus for future growth while ensuring the efficient and compatible use of available land. The land use planning process establishes long-range goals and provides starting points to discuss land acquisition or disposal actions and siting of new facilities. This planning helps to define the best layout of land uses and transportation corridors to support functional effectiveness, efficiency, and compatibility. Both on- and off-base factors are considered.

There are several existing and planned Capital Improvement Projects and other projects to facilitate future growth at Malmstrom AFB. These reasonably foreseeable project actions include:

- Construction of pre-engineered steel warehouse structures and temporary sprung structures at the RED HORSE east compound, assessed under previous NEPA actions.

- Adding 165 active duty positions to the 819th RHS within the next two years, bringing the manpower total to 450 active duty personnel.
- Construction of an Army Reserve Building at the southeast corner of the eastern portion of the installation. This construction would include 36,000 SF of facilities and 7,000 square yards of pavement, and would require paving of the road to the site, as well as utilities extensions.
- Construction of a small 900 SF Communication Building north of Building 1846.
- Construction of a 6,000 SF Propulsion System Rocket Engine Building west of Building 11664.
- Construction of a Truck Inspection Station (less than 3,000 SF) at the south entrance to Malmstrom AFB north of Highway 83.
- Construction of a 3,200 SF Rivet Mile Administrative Facility just north of the horse stables.
- Expansion of the Weapons Storage Area to the south.
- Renovations to the existing North and South Gates to add Anti-Terrorism/Force Protection controls and lighting.
- Military Family Housing, Phases I, II, III, IV, V VI and VII.
- Construction of a new Fitness Center and demolition of the existing Fitness Center.
- Mill and Overlay West Base (Phase IV) 52,500 square feet of existing pavements.

In addition, other actions announced for the surrounding community include:

- Construction of a 200 unit housing development outside the southwestern edge of Malmstrom AFB.
- Upgrade to city sewer lines.

In addition to the base-wide projects listed above, projects scheduled for adjacent properties are also planned for 2007. The RV park to the east of the proposed project area is scheduled for expansion further to the east. As a result, a large woodpile that sits at the northeast corner of the proposed property is to be relocated elsewhere on the base to another drainage that does not discharge via the Whitmore Ravine (341 CES/CEVC 2006b).

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Figure 11

Adjacent Landowner to North, at location of discharge from Storm Water Outfall #3
EA for Construction of Storm Water Detention System at Storm Water Outfall #3
at Malmstrom AFB, MT

4.1 IMPACT ANALYSIS

Table 6 summarizes potential cumulative effects on resources from the Proposed Action to construct and operate a storm water detention system at Malmstrom AFB, when combined with other past, present, and future activities. As indicated in Table 5, significant impacts to resources are not expected from the proposed projects.

Table 5
Cumulative Effects on Resources

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Air Quality	Proposed project area is in attainment area for CO, NO ₂ , SO ₂ , PM ₁₀ , O ₃ , and Pb. Small area in Great Falls classified as maintenance area for CO.	Emissions from limited aircraft use on base, vehicles, buildings, and other on-base construction projects (i.e., housing upgrades).	Potential dust emissions during soil removal, site grading and construction, and increased construction vehicle traffic.	Limited growth at Malmstrom AFB and Great Falls will result in increased traffic and emissions, particularly short-term adverse impacts from construction activities.	Continued attainment for Malmstrom AFB and continued maintenance area in Great Falls for CO is anticipated. Minor effect.
Noise	Aircraft activities on base, although limited, are dominant noise source.	Continued limited aircraft activities are a dominant noise source, as well as current construction of housing upgrade phases.	Short-term noise increase as a result of construction of storm water detention system.	Anticipated base construction projects and housing upgrade phases will result in increased traffic and noise, particularly short-term adverse impacts from construction activities. .	Aircraft activities would be dominant noise source; short-term construction-related noise sources. Negligible effect.
Soils	Past urban and on-base development has modified soil structure and stability.	Current construction of housing upgrade phases.	Grading, excavating, and soil recontouring would result in further soil disturbance to previously disturbed area.	Continued development of Malmstrom AFB would locally impact soils.	Impacts would be permanent but localized. Negligible effect.

Table 5
Cumulative Effects on Resources

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Water Resources	Surface water quality moderately impacted by development and past disposal practices.	Surface water quality moderately impacted by development.	Potential sedimentation from construction to be controlled with the implementation of appropriate BMPs. Purpose of the proposed project is to limit discharge flow rate to control erosion in downstream receiving waters, providing long-term beneficial impact on water quality.	Continued development of Malmstrom AFB would result in sedimentation from construction, to be controlled with the implementation of appropriate BMPs.	Increased sedimentation from construction would be controlled with the implementation of appropriate BMPs. Minor effect.
Hazardous Materials and Waste	Proposed project area site of former pole yard storage area (IRP site SS-09). Corrective measures and cleanup of site resulted in site closure.	Current construction of on-base projects may incur use or generation of hazardous materials or wastes.	Construction of storm water detention system may incur use or generation of hazardous materials or wastes.	Continued development at Malmstrom AFB would incur use or generation of hazardous materials and wastes.	Negligible effect since all hazardous materials and wastes used or generated during project implementation would be used and disposed of according to all applicable regulations.
Solid Waste and Pollution Prevention	Past urban and on-base development has generated solid waste.	Current construction of on-base projects may generate solid wastes.	Construction-related generation of solid waste may occur or discovery of excess lumber or scrap material during construction. No major changes to USAF P2 initiatives or solid waste generation are anticipated following construction activities.	Continued development at Malmstrom AFB and Great Falls would generate solid wastes.	Negligible effect.

SECTION FIVE

List of Preparers

This EA has been prepared under the direction of DoD and Malmstrom AFB. The individuals who contributed to the preparation of this document are listed below.

Name	Degree	Expertise	Years of Experience
<i>URS Group, Inc.</i>			
James Denier	M.B.A., Business Administration B.A., Biological Sciences	Project Manager and Contributing Author; Senior Technical Review	27
Rachel Wieland	B.A., Biology and Environmental Science	NEPA Specialist; Principal Author	13
Eric Farrington	B.E.S., Civil Engineering	Water; Environmental Compliance and Permitting	19
Jeanne DeFauw	B.F.A., Graphic Design	Graphic Design	8

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SECTION SIX

Distribution List and Agencies and Individuals Contacted

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Local Agencies

Great Falls City Planning Department
Great Falls Civic Center
#2 Park Drive South, P.O. Box 5021
Great Falls, MT 59403

Cascade County Commissioners
Courthouse Annex Room 111
325 2nd Avenue North
Great Falls, MT 59401

State Agencies

Mark Baumler, Ph.D.
Montana State Historic Preservation Officer
The Montana Historical Society
225 N. Roberts, P.O. Box 201201
Helena, MT 59620-1201

Bob Bukantis
Montana Department of Environmental Quality
Metcalf Building
1520 E. 6th Avenue, P.O. Box 200901
Helena, MT 59620-0901

Federal Agencies

Larry Svoboda
NEPA Program Director
U.S. Environmental Protection Agency Region 8,
EPR-N
1595 Wynkoop Street
Denver, CO 80202-1129

U.S. Environmental Protection Agency
Montana Operations Office
Federal Building
10 West 15th Street, Suite 3200
Helena, MT 59626

Mark Wilson
Field Supervisor
U.S. Fish and Wildlife Service
Montana Ecological Services Field Office
585 Shepard Way
Helena, MT 59601

Stakeholders

Loy Estate
c/o Helen Doney
P.O. Box 5011
Great Falls, MT 59403

Lisa Barton
3241 9th Avenue North
Great Falls, MT 59405

Public Repositories

Arden G. Hill Memorial Library
Malmstrom Air Force Base
7356 4th Avenue North, Building 1152
Great Falls, MT 59405

Great Falls Public Library
301 2nd Avenue North
Great Falls, MT 59401

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SECTION SIX

Distribution List and Agencies and Individuals Contacted

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Appendix A

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Notice of Availability and Affidavit of Publication

AFFIDAVIT OF PUBLICATION
THE GREAT FALLS TRIBUNE
205 RIVER DR S
GREAT FALLS, MT 59405
Phone: (406) 791-1444
Toll Free (800) 438-6600

Terri VanLieshout, being first duly sworn deposes and says that GREAT FALLS TRIBUNE COMPANY is a corporation duly incorporated under the laws of the State of Delaware, that the said GREAT FALLS TRIBUNE COMPANY is the printer and publisher of the GREAT FALLS TRIBUNE, a daily newspaper of general circulation of the County of Cascade, State of Montana, and that the deponent is the principal clerk of said GREAT FALLS TRIBUNE COMPANY, printer of the GREAT FALLS TRIBUNE, and that the advertisement here to annexed.....

NOTICE OF AVAILABILITY – MALMSTROM AFB

Has been correctly published **ONE** time in the regular and entire issue of said paper on the following dates:

JUNE 14TH 2007

Terri VanLieshout
STATE OF MONTANA
County of Cascade

On this 15TH of JUNE 2007, before me the undersigned, a Notary Public of the State of Montana, personally appeared Terri VanLieshout, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same.

In witness whereof, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.

Vivian A Hunter

Print Name

Vivian A Hunter
Signature

NOTARY PUBLIC for the State of Montana
Residing in Cascade County

My commission expires: : 11/12/09

NOTICE
of AVAILABILITY
MALMSTROM AFB
Draft Environmental
Assessment and Finding
of No Significant Impact
Malstrom AFB pro-
poses construction of a
Storm Water Detention
System at Storm Water
Outfall #3. A Draft Envi-
ronmental Assessment
and Finding of No Signifi-
cant Impact for this ac-
tion are located at the
City of Great Falls Pub-
lic Library and
Malstrom AFB Library
for review. Copies of the
document can be ob-
tained by calling
406-731-7227. Malstrom
is soliciting comments
until July 16, 2007. Com-
ments will be incorporat-
ed into the final environ-
mental assessment. Any
comments should be ad-
dressed to:
341 CESCEVC
39 78th Street North
Malstrom AFB, MT
59402-1111
or e-mail: malstromafblib@
malstrom.af.mil
(201378) 6114.



NOTICE of AVAILABILITY

MALMSTROM AFB

Draft Environmental Assessment and Finding of No Significant Impact

Malmstrom AFB proposes Construction of a Storm Water Detention System at Storm Water Outfall #3. A Draft Environmental Assessment and Finding of No Significant Impact for this action are located at the City of Great Falls Public Library and Malmstrom AFB Library for review. Copies of the document can be obtained by calling 406-731-7227. Malmstrom is soliciting comments until July 16, 2007. Comments will be incorporated into the final environmental assessment. Any comments should be addressed to:

341 CES/CEVC
39 78th Street North
Malmstrom AFB, MT 59402

or e-mail:

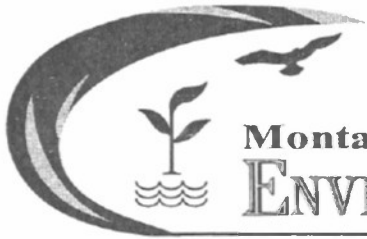
341ces.environmental@malmstrom.af.mil

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Appendix B

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Interagency Coordination Letters



msg KOB
CY to CE —
G/S/31

Montana Department of
ENVIRONMENTAL QUALITY

71
Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

May 17, 2007

Colonel Sandra E. Finan
Department of Defense, USAF
39 78th Street North
Malmstrom AFB, MT 59402-7538

RE: Authorization No. **MTB012407** Short-Term Water Quality Standard for Turbidity Related to Construction Activity Pursuant to 75-5-318, MCA
VALID June 1, 2007 through May 31, 2008.

Dear Colonel Finan:

The Montana Department of Environmental Quality Water Protection Bureau has completed our review of your application for activity on **the Missouri River (Sec 2, T20N, R4E) in Cascade County**. This activity herewith is qualified for a temporary surface water quality turbidity standard if it is carried out in accordance with the following conditions:

- (1) Construction activities in or near the watercourse are to be limited to the minimum area necessary, and conducted so as to minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation,
- (2) The use of machinery in the watercourse shall be avoided unless absolutely necessary. To prevent leaks of petroleum products into waterways, no defective equipment shall be operated in the watercourse or adjacent areas capable of contributing surface flow to the watercourse,
- (3) Precautions shall be taken to prevent spillage of any petroleum products, chemicals or other deleterious material in or near the watercourse, and no equipment shall be fueled or serviced in adjacent areas capable of contributing surface flow to the watercourse,
- (4) All disturbed areas on the streambank and adjacent areas created by the construction activity shall be protected with temporary erosion control during construction activities. These areas shall be reclaimed with appropriate erosion control measures and revegetated to provide long-term erosion control,
- (5) Any excess material generated from this project must be disposed of above the ordinary high water mark, not classified as a wetland, and in a position not to cause pollution to State waters,
- (6) Clearing of vegetation will be limited to that which is absolutely necessary for construction of the project

- (7) The use of asphalt or petroleum-based products as riprap is strictly prohibited. Its use as fill material is also prohibited if it is placed in a location where it is likely to cause pollution of State waters,
- (8) This authorization does not authorize a point source surface water discharge. A MPDES permit is required for said discharge, and
- (9) The applicant must conduct all activities in full and complete compliance with all terms and conditions of any permit for this activity issued pursuant to the Montana Natural Streambed and Land Preservation Act (310 permit) or the Montana Stream Protection Act (124 permit), and any valid Memorandum of Agreement and Authorization (MAA) negotiated for this activity
- (10) Precautions shall be taken to prevent spillage of any petroleum products, chemicals or other deleterious material in or near the watercourse, and no equipment shall be fueled or serviced in adjacent areas capable of contributing surface flow to the watercourse. A spill containment kit must be available at the work site

This authorization is valid for the period June 1, 2007 through May 31, 2008 only. No authorization is valid for more than a one-year period of time.

Any violations of the conditions of this authorization may be subject to an enforcement action pursuant to the applicable provisions of the Montana Water Quality Act.

This authorization is granted pursuant to 75-5-318, MCA, and only applies to the activity described by your application. Any modification of the activity described in your application which may result in additional turbidity in the stream must receive prior approval from the Department. You may contact me at (406) 444-4626.

Sincerely,



Jeff Ryan
Water Quality Specialist
Water Protection Bureau
e-mail jeryan@mt.gov



Montana Fish, Wildlife & Parks

26 April 2007

4600 Giant Springs Road
Great Falls, MT 59405
Phone (406) 454-5853

Colonel Sandra E. Finan
Commander, 341st Space Wing
21 77th St. North, Ste. 144
Malmstrom AFB, MT 59402-7536

Subject: Permit No.:	Misc-06-07
Waterbody:	Unnamed tributary to Whitmore Ravine
Project Name:	Detention pond for sub drainage area #3
Water Code:	NA
Legal Description:	T20N, R4E, S2

Relative to the Montana Stream Protection Act, we have completed our review of the proposed detention pond and outflow for sub drainage # 3 on the north perimeter of Malmstrom Air Force Base. This department is especially concerned with any activity that could contribute to the severe erosion problems in the Whitmore Ravine area. For this reason we are recommending special attention be paid to the downstream areas during implementation of the project. We approve the project with the following special conditions:

1. All work shall be completed in an expeditious manner to avoid unnecessary impacts to the stream (s);
2. All work in the stream channel shall be conducted in dry conditions with no water flowing through the stream channel during construction;
3. You are instructed to consider three points when dewatering the channel during construction;
 - a. Water in outflow # 3 shall be diverted from a point upstream of the proposed construction site to the overflow channel that connects with outflow #4. Considering the banks of the channel directly upstream of the construction site are steep, unstable and weed infested, we recommend the stream be dammed using a bladder system located in the concrete channel between the oil water separator and the RV storage lot. This water shall be discharged into the uppermost section

of the existing overflow channel in order to provide the maximum amount of filtration afforded by grass lining the overflow channel,

- b. A water energy dissipation system shall be used to prevent placer-type erosion at the point where the water enters the overflow channel,
 - c. During construction, water from outflow # 3 shall be diverted and released from outflow # 4 at a rate that shall not result in erosion at the construction site, or the Whitmore Ravine area downstream. You are responsible for monitoring the downstream effects during this diversion process, adjust the outflow rate to prevent erosion, and report any erosion to the downstream landowner and proper authorities (i.e. Montana Department of Environmental Quality);
- 4. Any excess or excavated materials generated from this project must be disposed of above the ordinary high water mark and not in an area classified as a wetland;
 - 5. Disturbed channel slopes shall be stabilized using silt fence, straw bales or geotextile mats, then reseeded with grass. A considerable amount of noxious weeds are present at the site. We recommend seeding grass in a manner that provides the maximum germination success for grass (i.e. hydro-mulch seeding);
 - 6. To prevent overloading of the aforementioned water containment methods, this work shall be conducted during predicted low storm event periods (July 1 and September 30);
 - 7. You are required to notify this department at least seven days prior to dewatering and construction so an on-site inspection can be scheduled during the construction process.

This permit is valid for **one year** from the date of the permit.

 X This project may cause a significant increase in turbidity. Therefore, the applicant must contact the Department of Environmental Quality to determine narrative conditions required for meeting short-term water quality standards and protecting aquatic biota.

 This project will not significantly increase turbidity if completed according to the conditions listed in the permit. Therefore, application to DEQ is not required.

Sincerely,

A handwritten signature in black ink, appearing to read "Grant Grisak", with a long horizontal flourish extending to the right.

Grant Grisak
Fisheries Biologist

cc: Glenn Phillips

Jill Lorang - Cascade County Conservation District

Jeff Ryan – Montana Department of Environmental Quality

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Appendix C
Public Comments

PUBLIC COMMENTS

The following comments were received during the public comment period for the *Environmental Assessment for Construction of Storm Water Detention System at Storm Water Outfall #3* that ran from June 14 to July 16, 2007. They include written comments received from Montana Fish, Wildlife & Parks; and Cascade County Conservation District.

The following table provides a summary of the individual comments received and the Malmstrom AFB response to the comments. Following the table are copies of the letters sent by these agencies.

PUBLIC COMMENTS AND Malmstrom AFB RESPONSES

Summary of Comment	Malmstrom AFB Response
Montana Fish, Wildlife & Parks suggests the EA does not mention the requirement for Short Term Water Quality Standards for Turbidity during construction projects.	Appropriate permits have been applied for and received by Malmstrom AFB.
Montana Fish, Wildlife & Parks recommends consideration of an additional alternative to develop a larger detention basin off-site.	Fiscal law constraints and prohibits the Air Force to expend the funds appropriated for this project outside the installation boundaries.
Cascade County Conservation District expressed concern over maintaining stability in the downstream channel of the Whitmore Ravine	TD&H were the design engineers for the project and have provided assurances that the project is sufficient.
Cascade County Conservation District states that there are a number of areas with apparent wetland characteristics that have formed in the bottom of the ravine, and recommends that a certified wetland scientist complete a wetlands evaluation.	The base has completed wetland delineation within the last year and there were no jurisdictional wetlands along any of the installation easements outside the boundaries of the installation.
Cascade County Conservation District suggests that only species present on base were part of the biological resources impact analysis completed for the EA, not downstream areas.	This comment exceeds the scope of the proposed action.
Cascade County Conservation District is concerned that Malmstrom AFB will continue to have adverse impacts on the soil resources.	Opinion noted and considered.
Cascade County Conservation District is concerned that the continued downstream erosion will continue to have adverse impacts on water quality.	Opinion noted and considered.
Cascade County Conservation District expressed concern over the EA being more specific about how soils will be tested at the former pole yard storage area prior to final acceptance of the proposed site for a detention pond.	This is a closed restoration site and the MTDEQ had concurred that the site is cleaned and closed. However; in an abundance of caution the government has budgeted funds for any potential contamination encountered.

rec
7/13/07
JAC



Montana Fish, Wildlife & Parks

4600 Giant Springs Road
Great Falls, MT 59405
406-454-5846
FAX:406-761-8477
Ref:RS071107-01

July 11, 2007

Ms. Karen J Clavin
341 CES/CEV
39 78th Street North
Malmstrom AFB, Montana 59402-7536

Dear Ms. Clavin:

Attached are comments regarding the EA *"For Construction of Storm Water Detention System At Storm Water Outfall #3 At Malmstrom Air Force Base Montana"* from Montana Fish, Wildlife, & Parks.

Sincerely,

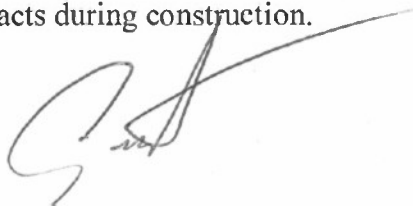
A handwritten signature in cursive script that reads "Gary Bertellotti". The signature is fluid and stylized, with the first and last names being more prominent.

Gary Bertellotti
Region 4 Supervisor

Fisheries comments to MAFB EA to construct a detention pond at storm outflow #3.

Montana Fish, wildlife & Parks has reviewed the draft EA *For Construction of Storm Water Detention System at Storm Water Outflow #3* and we have the following comments;

- Page 1-5 indicates one purpose of the proposed project is to address erosion at storm outflow #3. Section 2-5 of the EA states that the proposed action would reduce outflow into Whitmore Ravine. The EA considers only a single action alternative to meet this objective. We recommend you consider a second action alternative such as developing a larger detention basin off-site.
- Section 1.4.1 of the EA lists only long term applicable water laws, but does not mention the requirement for Short Term Water Quality Standards for Turbidity (318 Authorization) during construction projects. Although the EA provides details of the design aspects of the project, we recommend developing the EA to disclose more details of the construction aspects of the EA, specifically temporary erosion control measures, dewatering strategies during construction, emergency contingency plans during construction, reseeding, and weed control measures. Furthermore, we recommend the EA disclose and evaluate the short term turbidity associated with this project during construction as well as turbidity abatement measures to mitigate water quality impacts during construction.

A handwritten signature in black ink, appearing to be 'S. Smith', is located at the bottom right of the page.

DRAFT
ENVIRONMENTAL ASSESSMENT
FOR CONSTRUCTION OF STORM WATER
DETENTION SYSTEM
AT STORM WATER OUTFALL #3

Malmstrom Air Force Base, Montana



Prepared by

Headquarters Air Force Center for Environmental Excellence
Project Execution Division

June 2007

Clavin, Karen J Civ 341 CES/CEVC

From: Toni Neslen [cccd@3rivers.net]
Sent: Monday, July 16, 2007 3:33 PM
To: Clavin, Karen J Civ 341 CES/CEVC
Subject: EA comments

Attachments: EA whitmore ravine.doc



EA whitmore

avine.doc (35 KB)..

Attached please find our comments to the Environmental Assessment for Construction of Storm Water Detention System at Storm Water outfall #3 at Malmstrom Air Force Base, Montana.

thank you,

Toni Neslen
District Administrator
Cascade County Conservation District
12 Third Street NW
Great Falls, Montana 59404
406-727-3603 ext 125

To: US Air Force, 341 Space Wing; Malmstrom AFB
From: Cascade County Conservation District
RE: Comments/concerns of Environmental Assessment, For Construction of Storm Water Detention System at Storm Water Outfall #3

We received a copy of your June 2007 Draft EA Assessment for a proposed detention pond and outfall structure to the middle fork, Whitmore Ravine.

As you know, since 2000 our organization (CCCD) has been actively working with agricultural producers along Whitmore Ravine to characterize and identify solutions to severe ongoing channel incision in the ravine. Our interest in this effort is both in preserving valuable farmlands within the county and in reducing sediment delivery to the Missouri River. To date, approximately 450,000 tons of sediment has been delivered to the river, which is currently listed on the 303D list by Montana Department of Environmental Quality (MTDEQ) as impaired for turbidity. That material represents 200 acres of valuable, high producing farmland.

The impacts of the watershed urbanization on stream channel morphology are well documented and widely recognized by the civil engineering profession i.e.

Arnold, C.L., P.J. Bosion, and P.C. Patton, 1982. *Sawmill Brook: An Example of rapid Geomorphic Change Related to Urbanization*. Journal of Geology 90:155-166

Booth, D.B., 1990. *Stream-channel Incision Following Drainage Basin Urbanization*. Water Resources Bulletin 26:407-417.

Hammer, T.R., 1972. *Stream Channel Enlargement due to Urbanization*. Water Resources Research 8:1530-1540

Leopold, L.B., 1973. *River Channel Change with Time: An Example*. Geological Society of America Bulletin. 84:1845-1860

Channel incision processes, such as those ongoing in Whitmore Ravine, are typical results of increased peak storm flows due to lower rates of infiltration/time of concentration on developed areas.

During the 10 years the CCCD, landowners, Cascade County and Natural Resources Conservation Service (NRCS) have worked together to address the ravine – representatives from Malmstrom have been unwilling to participate. While the proposal described in the EA is a step in the right direction for the base in reducing their impacts on the ravine, it will not provide a long-term solution to the problems. We have the following specific concerns and comments:

1. The proposed 404,700-cft-detention pond is inadequately sized to prevent further erosion in the downstream channel. The 2006 "*Whitmore Ravine*

Erosion Control Study” prepared by TD&H Engineering Consultants, indicates that outflows from a 5,263,000 cft pond would be in the range of 2 – 3.5 ft/sec; beyond those considered to be within permissible limits for stability in the existing channel. Flows from a pond 10% the size, then, will clearly be beyond what can be tolerated by the ravine downstream. Generally, the supposition that designing storm water facilities to pre-development discharges is reasonable, but only if the downstream channel stability can be maintained. In the case of Whitmore Ravine, the existing unvegetated incised channel (with no floodplain access) will require downstream grade control or armorment, as described in the TD&H report.

2. Section 1.3.2 indicates that there are no jurisdictional wetlands within the potential area to be impacted by the project. It appears that the EA analysis was limited to the property “on-base”. As the intent of the proposed project is to reduce off base environmental impacts, it would be appropriate for potential degradation in downstream wetlands to be evaluated. There are a number of areas with apparent wetland characteristics that have formed in the bottom of the ravine - further channel degradation would certainly endanger these areas. A field evaluation by a certified wetland scientist should be completed prior to excluding wetlands from the EA.
3. Section 1.3.2 indicates no impacts on biological resources from the process. Again, only species present on “on-base” lands were included in the analysis, not downstream areas (including the Missouri River) that will be impacted by the project.
4. Section 3.4 indicates that the main concern regarding soil erosion is sedimentation or dust generated during construction. This is hardly the case; even the worst run construction site will generate exponentially less sediment than outflows from this project. It is expected that Malmstrom storm water runoff will continue to have adverse impacts on the soils resources.
5. Section 3.5 indicates that impacts to water resources are, as with soils, primarily only a concern during construction. Although we recognize that the small detention pond proposed would have a slight beneficial effect in

reducing peak flows, the continued downstream erosion will continue to have adverse impacts on water quality.

6. Section 3.6 describes the site of the proposed pond in the former pole yard storage area. While it is understood that a past cleanup effort addressed PCB contaminated soils in the upper horizon, it would be appropriate for the proposal to be more specific about how soils below this elevation will be tested prior to final acceptance of the site for a pond.

In summary, we applaud USAF's good intentions in regards to minimizing further degradation to Whitmore Ravine, however we view the submitted proposal as inadequate both in terms of a solution and in terms of a full and complete Environmental Assessment. In particular, we are concerned about the small size of the detention basin, lack of stability measures in the existing unstable downstream channel, and the fact that the problem of a constant, year-around base flow was not addressed in the design. It is our opinion that the best solution will come through an open, public planning process involving affected landowners and all interested stakeholders.